

Association Institute

1911-12

Co-Operative School of Engineering

Year 1910-1911

Subjects:

Civil Engineering:

1st yr.

Mathematics 9
Mechanical Drawing 12
Freehand Drawing 12
English
Surveying & Plotting 4
Physics
Chemistry

3rd year

Railroad Engineering 18
Advanced Surveying 14
Structural Geology 14
Materials 16
Building Stones & Lithology
Business Law ?

2nd year

Mathematics
Surveying & Plotting 11
Physics
English
Mechanical Drawing 11
Topographical Drawing
Dynamical Geology 5

4th year

Theory of structures 9
Bridge Design 11
Foundations 8
Railroad Engineering 10
Railroad Designing 12
Steam Engineering 12

Frank P. Chapman

Subjects:

Mechanical Engineering:

First year

Mathematics
Mechanical Drawing
Freehand Drawing
English
Physics
Chemistry

Second Year

Mathematics
English
Mechanical Drawing
Physics
Mechanism
Mechanical Engineering
Drawing.

Third Year

Applied Mechanics 70
Electrical Engineering
Electrical Engineering
Lab.
Machine Drawing
Steam Engineering 72
Metallurgy of Iron
Business Law

Fourth Year

Applied Mechanics
Dynamics of Machines 72
Machine Design
Engineering Laboratory 72
Hydraulics Motors
Steam Engineering 72
Electives 72
Locomotive Construction

Year 1910-1911

Subjects:

Chemical Engineering:

1st year

- Mathematics 10
- Mechanical Drawing
- Freehand Drawing
- English
- Inorganic Chemistry
- Inorganic Chemistry, Lab.
- Physics
- German

Third year

- Quantitative Analysis 126
- Steam Engineering 12
- Machine Drawing 72
- Applied Mechanics 70
- Organic Chemistry 12
- Organic Chemistry, Lab. 90
- Business Law

2nd year

- Mechanism
- Physics
- English
- Mathematics
- Mechanical Drawing
- German
- Qualitative Analysis 916
- Quantitative Analysis

Fourth year

- Organic Chemistry 56
- Theoretical Chemistry 54
- Dynamo Electric Machinery
- Applied Mechanics 56
- Special Analytical Methods
- Oil & Gas Analysis 10
- Electro Chemistry 10
- Electrical Eng. Lab. 5

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ASSOCIATION INSTITUTE

ANNOUNCEMENT

Evening Preparatory School
Evening Business School

1911-12



BOSTON, MASSACHUSETTS

Published by the Young Men's Christian Association

1911

970

ASSOCIATION INSTITUTE

BOSTON YOUNG MEN'S CHRISTIAN ASSOCIATION

Organized on the University Plan

Day, Evening and Summer Schools from the 7th Grade Grammar up to and including work qualifying for a College Degree.

College Preparatory School

Day and Evening Sessions

A high-grade College Preparatory School consisting of a Grammar School (7th and 8th grades) and a High School fitting for the Colleges, Medical and Dental schools, Massachusetts Institute of Technology, Annapolis, West Point, Lowell School for Industrial Foremen, Law schools and the classified Civil Service.

ERNEST P. CARR, A.M., Brown University, Dean

School of Business

Day and Evening Sessions

Offers all of the courses of the regular Business School program, and additional cultural courses preparing for business and admission to our School of Commerce and Finance.

ARTHUR H. DELANO, A.B., Boston University, Dean

Co-operative Engineering School

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Four years' courses of college grade in Chemistry, Mechanical and Civil Engineering, etc., in co-operation with business firms. Students earn while learning.

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Three years' courses of high school grade in commercial training combined with business experience. Earning while learning.

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Established 1907; incorporated 1911. Offers a two year course in preparation for the Certified Public Accountants' examinations, also a three years' course in Business Administration.

Evening Law School

Evening Sessions Only

Established in 1898; incorporated in 1904. Provides a four years' course in preparation for the Bar and grants the Degree of Bachelor of Laws.

FRANK PALMER SPEARE, Dean

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A School of many departments, training students in Engineering and Applied Science. Much of this work is of technical school grade.

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Day and Evening Sessions

Offers one and three years' courses in Applied Electricity and Engineering. Well-equipped shops and laboratories.

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Day and Evening Sessions

Deals with the construction, care and operation of all types of gasoline vehicles; a large staff of teachers; ample equipment and garage.

WINTHROP C. HOSFORD, Dean

For further information concerning any of the above schools or departments, address the Educational Director,

FRANK PALMER SPEARE, 10 Ashburton Place, Boston Mass.

CALENDAR
Summer Term -
(PREPARATORY SCHOOL ONLY)

1911

May 2 and 4 Examinations for Advanced Standing

11, 12, 13 Registration

15 Opening of Summer Term

30 Memorial Day, Holiday

July 4 Independence Day, Holiday

Sept. 4 Labor Day, Holiday

Sept. 15 Close of Summer Term

Winter Term

(PREPARATORY AND BUSINESS SCHOOLS)

Sept. 28, 29, 30 Registration

Oct. 2 Opening of Winter Term

Oct. 12 Columbus Day, Holiday

Nov. 30 Thanksgiving, Holiday

Dec. 25 Christmas Day, Holiday

1912

Feb. 22 Washington's Birthday, Holiday

April 19 Patriots' Day, Holiday

April 27 Close of Winter Term

OFFICERS OF ADMINISTRATION

ARTHUR S. JOHNSON, President

GEORGE W. MEHAFFEY, General Secretary

FRANK P. SPEARE, Educational Director

GALEN D. LIGHT, A.B., Superintendent Evening Schools and Bursar

OLIVER T. NOON, S.B., Secretary and Asst. Bursar

ERNEST P. CARR, A.M., Dean Preparatory School

ARTHUR H. DELANO, A.B., Dean Business School

EDUCATIONAL COMMITTEE

JOHN ROUSMANIERE, *Chairman*

JOHN SHEPARD

WILLIAM E. MURDOCK

D. CHAUNCEY BREWER

ALBERT H. CURTIS

PREPARATORY SCHOOL

ADVISORY BOARD

PROF. PAUL H. HANUS, Professor of Education, Harvard University

PROF. WILLIAM M. WARREN, Dean, College of Liberal Arts, Boston University

FACULTY

ERNEST P. CARR, A.M., *Dean*

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ERNEST P. CARR, A.M., English, Physical Geography

JAMES N. CARTER, Ph.B., History and Physical Geography

CLARENCE E. EBERT, Mathematics

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HAROLD S. GRAVES, Drawing

WILLIAM A. LACKEY, A.B., Arithmetic and English

JAMES METIVIER, A.B., Languages

ROLLA SHREVES, A.B., Arithmetic, English and History

ELLWOOD B. SPEAR, A.B., Ph.D., Chemistry

JAMES B. TAYLOR, A.M., English

CHARLES B. GRAY, Asst. Secretary Association Institute

KATHERINE M. VINTON, Secretary to the Educational Director

FOREWORD

The Preparatory School of the Association Evening Institute points with pride to its uniformly successful record in fitting men for the entrance examinations for Harvard, Yale, Brown and Boston Universities, for Tufts, Dartmouth, Massachusetts Institute of Technology and other colleges; also for the Association Law School and all branches of the classified civil service.

In order to better meet the constantly increasing demands upon it, the school is now in operation throughout the year. The summer term for 1911 will open May 15, and continue until September 15. The winter term will open October 2.

The work of the School is adapted to the needs of the individual and appeals to men of intense purpose. Individual instruction and the greatest economy of time and energy consistent with thoroughness are marked characteristics of the school. In this way the needs of all students are met in a most effective manner.

We recommend that everyone take the prescribed courses with the respective classes, but in case this is not possible, examinations for advanced standing will be held May 2nd and 4th. Further information may be had by calling upon or writing to the Dean.

DEPARTMENTS

Department of English

That a careful, thorough study of English is fundamental to success in any occupation is apparent to every thoughtful person. The work of this department is arranged with special relation to the entrance requirements of the New England colleges, Association Law School, and the academic training required by the Board of Bar Examiners, as well as for the interest and enjoyment of the pupil.

English I. MR. LACKEY; MR. SHREVES.

Study of the parts of speech and their relation to the sentence; study of sentences, simple, complex and compound: clauses and phrases; choice in the use of words, and correction of common errors; followed by a drill on all kinds of commercial papers; notes, checks, drafts, bills and receipts; telegrams, and letters of introduction, recommendation and application.

English II. MR. CARR; MR. TAYLOR.

Grammar, composition, dictation, spelling, reading, letter writing. Irving's Sketch Book and Scott's Lady of the Lake are used as text books. Compositions on these and other subjects indicate the grade of work.

English III. MR. TAYLOR.

Analysis, composition and rhetoric; the study of Shakespeare's plays and Burke's Conciliation with America.

English IV. MR. TAYLOR.

Study of poetry and essays. Milton, Macaulay and other models will be studied.

Department of Mathematics

The courses in this department are intended and conducted for students preparing for college examinations or examinations for other institutions. Our aim is to fit for college as rapidly as is consistent with thorough work. All unnecessary subjects are omitted. Students who have completed the courses have found no difficulty in passing entrance examinations of the leading colleges and many of our students have been honor men while in college.

Algebra. MR. EBERT.

The fundamental processes, highest common factor, least common multiple, simple equations, simultaneous equations of two or more unknown quantities, involution and evolution, and theory of exponents, radicals, quadratic equations, simultaneous quadratics, ratio and proportion, progressions, binomial theorem and logarithms.

Plane Geometry. MR. EBERT.

The five books of plane geometry. Numerous originals.

Solid Geometry. MR. EBERT.

A continuation of the course in plane geometry, with special attention to originals. Meets college entrance requirements.

Department of Languages

Latin. MR. METIVIER.

Latin I. Beginning Latin (Barss); Gate to Caesar, Latin Composition.

Latin II. Caesar, Sallust and Latin Composition.

Latin III. Virgil, Cicero and Latin Composition.

French. MR. METIVIER.

French I. Practical Lessons (Colin and Sérafon). Reader.

Le Juif Polonais. Easy French Reader (François). Colomba. Historical French Reader (Weill).

French II. Chardenal Complete Course.

Jaques' Composition.

Le Siege de Paris.

Crime de Sylvestre Bonnard.

Le Malade Imaginaire.

Le Cid.

Andromaque.

French III. A course in French commercial correspondence will be given if called for by a sufficient number.

German. MR. METIVIER.

German I. Harris' Lessons — Marchen und Erzählungen Niels mit dor offenen Hand.

German II. Study of grammar continued and completed with especial attention to syntax; an introduction to scientific German; the

reading of stories and more literature, leading up to college examinations.

In addition, for those desiring commercial German and conversation, a thorough course will be given if a sufficient number desire it. Applicants for this course must have had the first-year course or its equivalent.

Italian and Greek.

Classes for the study of these subjects depend upon the number of applicants.

Spanish. See School of Commerce and Finance Catalog.

SCIENCE DEPARTMENT

Physics. MR. BALDWIN.

This course appeals strongly to men engaged in technical work. Instruction is given in the practical application of physical laws. Problems are given throughout the year to test the pupil's knowledge of these laws. Those preparing for college may be required to take additional work during the spring at the conclusion of the school year. The exercises will be selected from the following subjects:

MECHANICS

Density and specific gravity, simple machines (lever), parallelogram of forces, friction, pendulum, strength of materials, laws of elasticity, liquids and gases.

HEAT

Thermometry-coefficients, laws of expansion, specific heat, latent heat.

LIGHT

Reflection, refraction.

SOUND

Velocity, wave length, pitch.

ELECTRICITY

Magnetism, cells, electromotive force, resistance.

Chemistry I. Elementary. DR. SPEAR; MR. BALDWIN.

A course of lectures, supplemented by class room and laboratory work, on the elementary principles of inorganic chemistry. The course aims to familiarize the student with the fundamental laws of chemistry and with the preparation and properties of the important elements and their principal compounds. This course corresponds to the work done in chemistry at the best high and preparatory schools, and the students who have satisfactorily completed the work, have found no difficulty in passing the entrance examinations given by the leading colleges and scientific schools.

Physical Geography. MR. CARR; MR. CARTER.

This course gives a large amount of practical information, bearing

directly upon the physical conditions that affect customs, occupations and food distribution. The following are some of the subjects covered:

Evolution of earth's crust.

Soil: its formation and distribution.

Water: as a force of nature. Its influence on man's occupation; water power; irrigation; effect of conservation of resources on its supply.

Air: prevailing winds, trade winds, weather forecasts, etc.

Mineral products: coal, iron, gold, silver, etc.

Physiology and Hygiene. MR. SHREVES; MR. CARTER.

This course includes a study of the structure, the various systems, and organs of the body, and the observance of the laws of health.

ADDITIONAL COURSES

Arithmetic. MR. LACKEY ; MR. SHREVES.

A course in general arithmetic, covering much of the ground usually taken in grammar schools. Starting with fractions, the course includes the most essential subjects. The work is largely individual, so that the student may advance as rapidly as his ability will admit.

History (English and American) and Civics. MR. SHREVES.

A course in civics, or the principles of government, is given in connection with history. After tracing the growth of law and order through Greek and Roman history, more careful attention is given to the great principles of English constitutional history as established by the Magna Charta, the Bill of Rights, Habeas Corpus, and the English Revolution, until the pupil is ready to appreciate the strength of our Constitution and its amendments.

State, county, town and city government are considered after the national basis has been laid.

History (General). MR. SHREVES; MR. CARTER.

A course in history is given with the design of supplying those who have not had the privilege of high school study, with the main trend of history in Greece, Rome, England, and our own country, as bearing on the civilization and democracy of the present day. After mastering the main facts that have made certain favored nations shine in the light of history, the young student of law or commerce may feel both stimulated and assured, and, therefore, more ready to meet the industrial and financial problems of today.

The Democracy of Athens, The Rise of the Plebeians in Rome, Magna Charta, The King *versus* Parliament, Cromwell, Victorian Reforms, The American Revolution, and the Constitution are a few of the things to be treated.

Civil Service. MR. ELLIOTT.

This course has been in operation thirteen years and has been phenomenally successful in preparing students to pass the state and national examinations, and in enabling them to secure appointments.

Large numbers of our students have been successful in securing appointments in Fire, Police, Railway Mail, Custom, and other Departments. During a visit to the Boston Custom House ten of our students were met, all of whom attributed their success entirely to work done in the Association Institute. The greatest number of students have been located in the Post Office Department as carriers or clerks, and scarcely a branch of this service in Greater Boston can be visited without encountering one or more of our young men.

INDUCEMENTS

Young men are led to try for this branch of the service because of the openings constantly occurring, which, with steady employment and salaries ranging from eight hundred to twenty-five hundred dollars per annum, offer most desirable positions. The mere successful passing of examinations is of no special value, as men are listed in accordance with the marks they receive, and it is necessary to get an average of over ninety per cent in order to receive any consideration. At a recent examination for the post-office, the highest mark for the New England States was obtained by one of our men, another one being third, another fifth, and seven came among the first fifteen. These men have all received appointments.

SUBJECTS CONSIDERED

Arithmetic, English, grammar, geography of the United States, history of the United States, spelling, penmanship, (vertical or slanting), composition and letter writing, copying from plain copy, copying from rough draft, reading from time dictation, reading of addresses, railway connections and junctions in New England, physics as applied to the use of various thermometers and specific gravity instruments, problems in gauging, and consideration of examinations on above subjects, as previously given by the examiners, comprise the course.

IMPORTANT CHANGE

Owing to recent changes in Civil Service examination dates, it is found impossible to thoroughly prepare average students for the clerical and minor clerical tests coming in November and February, in the time allotted between October 2nd and the examination dates.

To meet existing conditions a new class will be formed immediately after the February examinations of each year, continue until May, resume work in October, and finish just before the February tests.

As in former years a course will begin October next and will finish in February. Its purpose will be to meet the requirements of subclerical positions.

Men desiring to take the clerical and postal examinations are advised to take the full year's course beginning each February.

ACADEMIC PREPARATION FOR BAR EXAMINATIONS

The following is a copy of the recent ruling of the Board of Bar Examiners of Massachusetts relative to the academic preparation of applicants.

GENERAL EDUCATION¹

An applicant must have at least the equivalent of a high school examination.

Prior to August 1, 1911, proof thereof may be made by certificate of the applicant or otherwise.

After August 1, 1911, an applicant must show by certificate or certificates that (a) he is a graduate of a college, or of a high school, or of a school of equal grade; or (b) has passed the entrance examination of a college, or of the College Entrance Examination Board; or (c) has passed the examinations given for admission to the state normal schools of Massachusetts in the following subjects:

- I. Language.—English, with its grammar and literature.
- II. United States History.—The history and civil governments of Massachusetts and the United States, with related geography and so much of English history as is directly contributory to a knowledge of United States history.
- III. Any one of the following:—
 - (a) Latin
 - (b) French
 - (c) Algebra
 - (d) Plane Geometry
- IV. Any one of the following:—
 - (a) Physiology and Hygiene
 - (b) Physics
 - (c) Chemistry
 - (d) Botany
 - (e) Physical Geography

After August 1, 1912, an applicant must show by certificate or certificates that he (a) is a graduate of a college or of a high school, or of a school of equal grade; or (b) has passed the entrance examination of a college or of the college Entrance Examination Board; or (c) has passed the examinations given for admission to the state normal schools of Massachusetts in the following subjects:

- I. Language.—English, with its grammar and literature.
- II. United States History.—The history and civil governments of Massachusetts and the United States, with related geography and so much of English history as is directly contributory to a knowledge of United States history.

¹ *Reprinted from the Statutes and Rules in relation to the admission of Attorneys in Massachusetts.*

- III. (a) Latin or
(b) French
- IV. (a) Algebra or
(b) Plane Geometry
- V. Any two of the following:—
 - (a) Physiology and Hygiene
 - (b) Physics
 - (c) Chemistry
 - (d) Botany
 - (e) Physical Geography

N. B. A certificate or certificates showing compliance with the foregoing requirements must be filed with the chairman of the board at least ten days before the examination which the applicant desires to take.

ADDITIONAL RULE OF BOARD OF BAR EXAMINERS AS TO TERM OF STUDY OF THE LAW

VIII

(This took effect August 1, 1910)

No person shall be eligible for examination for admission to the bar until he shall have devoted three full years, or their equivalent (usual vacations excepted), to the study of the law.

The board will consider as a compliance with the provisions of rule VIII of the board, three years' study in any law school having a three years' course and holding regular day sessions; or four years' study in any evening law school having a four years' course.

MEETING THESE REQUIREMENTS

These new requirements necessitate more thorough preparation on the part of all, and since many who desire to study law have not had a high school education, yet by temperament and business experience are well adapted to undertake the work we have arranged to provide that form of preparatory training which they require. This has been accomplished by the re-organization of our Preparatory School in a novel way. The term from May 15 to September 15, while shorter in the number of weeks, is so arranged that by means of intensive work on the part of teachers and students, the work of the summer term will equal that of the winter term.

AMOUNT OF WORK NECESSARY

The amount of work necessary for each student will be determined after conference with the Dean of the Preparatory School. Blanks may be obtained at the office. These, when properly filled out, will give us the data necessary for passing upon each case. No two stu-

dents, of course, will require the same amount of training, and probably not the same subjects; therefore, the program and cost will vary with the needs of each individual.

LENGTH OF TIME NECESSARY

The number of summer or winter terms which the student will be obliged to attend will depend upon the amount of work it is necessary to accomplish, but in every case the time will be much less than in any other day or evening preparatory school in Massachusetts, owing to our highly skilled faculty and original methods.

ADDITIONAL INFORMATION

Examinations are held at the close of each term.

Students who are obliged to be absent from any classes should notify the office in advance.

Certificates are issued to students completing certain prescribed courses.

Scholarships

As an aid to worthy men who desire an education and are unable to pay in full even our slight charges, a limited number of scholarships has been provided, which will be judiciously distributed by the General Secretary, to whom application should be made.

The tuition quoted is for the summer or winter term unless otherwise specified and is in addition to either an educational (\$5.00) or gymnasium (\$10.00) membership in the Young Men's Christian Association. For the many membership privileges see "Year Book."

The tuition for all courses is payable in advance unless stated to the contrary, in which case times of payment are indicated. Students who discontinue a course, but who have attended at least four or more recitations in the subject will be required to pay a term's tuition.

No student is permitted to transfer from one course to another without consulting the Dean beforehand and receiving a transfer order which must be presented at the office of the Bursar for the proper ticket.

Suggested program for those requiring a full high school course. Modifications adapted to each case will be made upon request.

	Studies	Summer	Winter				
				Mon., Wed., Fri.	Mon., Wed., Fri.	Tues., Thurs.	Tues., Thurs.
First Year	English I Arithmetic Eng. and Am. Hist.	7.30-8.30 6.30-7.30 8.30-9.30		7.30-8.30 6.30-7.30 8.30-9.30		8.00-9.00 7.00-8.00 8.50-9.30	
Second year	English II Sec. A Sec. B Algebra Latin I or French I Physical Geog.	Tues., Thurs. Mon., Fri. Mon., Wed., Fri. Mon., Wed., Fri. Mon., Wed., Fri. Tues., Thurs.		6.30-7.30 7.30-8.30 6.30-7.30 7.30-8.30 8.30-9.30 8.30-9.30		7.30-8.10 7.30-8.10 6.30-7.15 7.30-8.10 7.30-8.10 6.45-7.30	
Third year	English III Geometry Latin III or French II	Tues., Thurs. Mon., Wed., Fri. Mon., Wed., Fri. Tues., Thurs.		7.30-8.30 7.30-8.30 6.30-7.30 8.00-9.30		Thurs. Wed., Fri. Tues., Fri. Mon., Thurs.	8.10-8.50 6.30-7.15 8.10-8.50 8.10-8.50
Fourth year	English IV Physiology French III or Latin III Physics I Chem. I Gen. Hist.	Tues., Thurs. Tues., Thurs. To be announced To be announced Mon., Tues., Thu., Fri. Mon., Tues., Thu., Fri. Tues., Thurs.		8.30-9.30 6.30-7.30		Thurs. Thurs. To be announced To be announced Mon., Wed., Fri. Mon., Wed., Fri. 7.30-8.30	6.45-7.30 8.30-9.30 8.00-9.00 7.00-8.00 8.10-8.50

SCHEDULE AND TUITION

Special Note:— These rates are in addition to membership. See page 12.

Courses	Summer	Winter	Tuition
Algebra	Mon., Wed., Fri. 6.30-7.30	Tues., Thurs. 7.30-8.30	6.30-7.15 \$8.00
Arithmetic	Mon., Wed., Fri. 6.30-7.30	Tues., Thurs. 7.00-8.00	5.00 21.00C.E.
Chemistry	Mon., Tues., Thurs., Fri. 7.30-8.30	Mon., Wed., Fri. 7.00-8.00	7.00-8.00 21.00C.E.
Civil Service	Not offered in Summer	Mon., Wed., Fri. 7.15-9.15	3.00A
English I	Mon., Wed., Fri. 7.30-8.30	Tues., Thurs. 8.00-9.00	5.00 5.00
English II	Tues., Thurs. 6.30-7.30	Tues. 7.30-8.10	5.00 5.00 } B
Sec. A.	Mon., Fri. 7.30-8.30	Thurs. 8.10-8.50	5.00
Sec. B	Tues., Thurs. 7.30-8.30	Thurs. 8.45-7.30	5.00
English III	Tues., Thurs. 8.30-9.30	Mon., Thurs. 7.30-8.10	5.00
English IV	Mon., Wed., Fri. 8.30-9.30	Mon., Thurs. 8.10-8.50	5.00
French I	Tues., Thurs. 8.00-9.30	To be announced Wed., Fri. 8.30-7.15	10.00
French II	To be announced	Mon., Thurs. 8.50-9.30	8.00
French III	Mon., Wed., Fri. 7.30-8.30	Mon., Thurs. 8.50-9.30	8.00
Geometry	Mon., Wed., Fri. 6.30-7.30	Tues., Fri. 8.50-9.30	8.00
German I	Tues., Thurs. 7.00-8.00	To be announced Tues., Fri. 8.50-9.30	10.00
German II	To be announced	Tues. 8.10-8.50	5.00
Greek	Tues., Thurs. 7.30-8.30	Tues. 8.50-9.30	5.00
General History	Tues., Thurs. 8.30-9.30	To be announced Tues., Fri. 7.30-8.10	10.00
Eng. and Am. History	To be announced	Mon., Wed., Fri. 6.30-7.30	8.00
Italian	Mon., Wed., Fri. 6.30-7.30	To be announced Tues., Fri. 8.10-8.50	10.00
Latin I	To be announced	Tues., Thurs. 8.30-9.30	5.00
Latin II	Tues., Thurs. 8.30-9.30	Mon., Wed., Fri. 8.00-9.00	21.00C
Latin III	To be announced	To be announced Tues., Thurs. 8.30-9.30	5.00
Phys. Geography	Tues., Thurs. 8.30-9.30	To be announced Tues., Thurs. 8.30-9.30	5.00
Physiology	Tues., Thurs. 8.30-9.30	Mon., Wed., Fri. 8.00-9.00	21.00C
Physics	Mon., Tues., Thurs., Fri. 8.30-9.30	C, payable in three equal installments; <i>viz</i> : summer term, upon entering, June 15 and July 15; winter term, upon entering, Dec. 1 and Feb. 1. Chemistry I and Physics combined \$36, payable in three equal installments. E, Laboratory fee in addition.	

ENTRANCE REQUIREMENTS

Any man of good character regardless of age, occupation or creed with adequate general education may be enrolled in the school.

A student may elect any subject, or combination of subjects, which best serves his particular needs. However, to prevent loss of time and expense to the student, he will not be allowed to elect courses which, on account of inadequate preliminary training and experience, he could not pursue with profit. The Dean should be consulted before registration.

Suburban Association Members

All tickets held by members of the Cambridge, Chelsea, Everett, Malden, Melrose, Newton, Quincy, and Somerville Associations will be honored for social privileges in the Boston Association. Holders of such tickets are allowed credit of \$2.00 on either an educational or a gymnasium membership.

For information not contained in this catalogue, call upon or address Frank P. Speare, Educational Director, 10 Ashburton Place Boston. Telephone, 145 Haymarket.

SCHOOL OF BUSINESS

FACULTY

ARTHUR H. DELANO, A.B., *Dean*

JOHN B. ALLEY, Boys' Commercial Courses

WALTER R. AMESBURY, Bookkeeping, Penmanship and Shorthand

WILLIAM L. ESTERBERG, Typewriting

FREDERICK C. HOSMER, Arithmetic and English

CALENDAR

See page 3

SCHEDULE

Monday,	Shorthand and Typewriting	7.00- 9.00
Tuesday,	Penmanship	7.00- 8.00
	Bookkeeping	8.00- 9.30
Wednesday,	Business English	7.00- 8.15
	Commercial Arithmetic	8.15- 9.30
Thursday,	Penmanship	7.00- 8.00
	Bookkeeping	8.00- 9.30
Friday,	Shorthand and Typewriting	7.00- 9.00

OUTLINE OF COURSES

Bookkeeping. MR. AMESBURY.

A short intensive course in practical bookkeeping, covering the scope of the average high school and business college course. The elements of double entry bookkeeping are taught without the use of a text-book. At the proper time the text-book and bookkeeping blanks are introduced, affording the student the necessary practice in applying the principles of accounts to business transactions. Wholesale, retail, and manufacturing bookkeeping are included in the practice work.

In the second half year many supplementary exercises will be introduced for the purposes of drill and practice in the more advanced bookkeeping principles.

Students completing this course satisfactorily may register for courses in the Department of Accountancy without further examination.

Business English. MR. HOSMER.

A course training the student in the use of correct and forceful English. Special emphasis will be placed upon the practical details of construction, punctuation, choice of words, proofreading, and upon the preparation of manuscripts for the printer. Students are required to write a number of business letters, themes, reports, arguments and advertising literature of various classes.

Commercial Arithmetic. MR. HOSMER.

A one-year course in practical business arithmetic. While it is the intention to teach the principles involved in all arithmetical calculations, the greater part of the time will be devoted to systematic drills with special emphasis on accuracy and rapidity.

The hours have been so arranged that both bookkeeping and shorthand students may take advantage of a practical course of present-day commercial calculations.

Penmanship. MR. AMESBURY.

A one-year course in plain business writing. Students are required to devote one hour to practice in the class room, and will receive the individual criticism of the instructor in charge.

The student is required to preserve all home work in budget form and the passing of the mid-year and final examinations is dependent upon these budgets.

Shorthand. MR. AMESBURY.

A one-year course in shorthand. Experience has proven that during a period of one year an average student, having a fair English training, may learn to write in shorthand, from dictation of ordinary business correspondence, at the rate of approximately one hundred words a minute, and transcribe the same on the typewriter, with a very low percentage of material shorthand errors.

During the first part of the course the principles will be thoroughly taught, after which will come drills and exercises in cumulative and

special phrasing, and dictation from business letters, etc., at graded speeds. In the latter part of the course the student transcribes his notes on the typewriter, copies letters, and does manifolding.

A speed sufficient for amanuensis work in a business office must be attained before the student is entitled to a certificate or to the services of the employment bureau.

The student desiring to use shorthand as a means of remunerative employment while preparing for some administrative position, will act wisely in selecting a standard system of shorthand. The system offered here is the Ben Pitman.

Typewriting. MR. ESTERBERG.

It is only recently that the subject of typewriting has been given proper attention. The business man of today judges the ability of his stenographer not from his shorthand notes, but from his typewritten transcript and the time it takes to complete it.

This course is in charge of a specialist who gives his close attention to the work of the department. The "Touch" method is taught, by which the student can acquire a greater speed than can be accomplished by the "Sight" method.

The student is first taught the mechanism of the machine, then the correct hand position and method of fingering. After these preliminaries, exercises on words, sentences and phrases are taken up in progressive order. In the advanced part of the course, instruction is given in letter-writing, addressing envelopes, manifolding, legal forms, card-indexing, tabulating, mimeographing, etc.

The student who finishes this course may feel assured that the training he has received will enable him to perform the work in a business office.

TUITION

The tuition for each of the following courses, Bookkeeping, Business English, Commercial Arithmetic and Shorthand, is \$10.00 for the school year, thirty weeks; Penmanship and Typewriting are \$5.00 each for the school year.

The fees for all courses are payable in advance, and are in addition to either an educational (\$5.00) or gymnasium (\$10.00) membership in the Young Men's Christian Association. For the many membership privileges see "Year Book."

Students who discontinue a course, but who have attended at least four or more recitations in the subject will be required to pay a term's tuition.

No student is permitted to transfer from one course to another without consulting the Dean beforehand and receiving a transfer order, which must be presented at the main office for the proper ticket.

SUGGESTED GROUPS

Group A — Bookkeepers' Course (Tuition \$30.00).

Bookkeeping, Penmanship, Commercial Arithmetic, Business English.

Group B — Stenographers' Course (Tuition, \$30.00).

Shorthand, Typewriting, Commercial English, Commercial Arithmetic.

EMPLOYED BOYS' COURSES

Course A — Shorthand and Typewriting, \$9.00. Mondays and Fridays.

Course B — Bookkeeping, Correspondence, Penmanship and Commercial Arithmetic, \$9.00. Mondays and Fridays, 7-9.

The above rates are payable in three equal instalments upon entering, December 1 and February 1, and are in addition to a membership in the Boys' Department, — \$2.00 a year for boys, fifteen to nineteen years, \$1.00 a year for boys, twelve to fifteen years. No charge is made for the use of books.

For Entrance Requirements and Additional Information see pages 12 and 15

DEPARTMENT OF PHYSICAL WORK

ALBERT E. GARLAND, M.D., B.P.E., Director

The Physical Department is under the best supervision and the aim is to better fit men for their life work by increasing their efficiency through exercise. The Gymnasium Ticket (\$10.00 annually) includes all the privileges of the regular and educational tickets and the use of two good gyms: M. I. T. Gymnasium, Garrison Street, and the Y. M. C. A. Gymnasium, 8 Ashburton Place. Numerous classes the year round. Shower, steam and electric baths. Best instruction. Medical direction. Hand ball courts. Basket ball, base ball, and athletics.

DEPARTMENT OF RELIGIOUS WORK

EDWIN W. PEIRCE, Director

Although mental training makes a young man keen, and physical exercise will make him agile and strong; yet, without the additional moral and spiritual development secured through knowledge of the principles of life laid down by the Great Teacher and striving to make them his own, his career may be a complete failure.

The Association, therefore, advises each member in planning his winter schedule to arrange to take advantage of one or more of the following special features:—

Bible Study, Sunday Meetings of Men, Personal Service Groups, and The Twenty-Four-Hour-A-Day Club.

(Ask for Bible Institute catalog and other printed matter.)

DEPARTMENT OF SOCIAL WORK

DAVID M. CLAGHORN, Director

The attention of members is called to the many opportunities in the Association for social service, and the following features among others:

A Newly Equipped Game Room	The Popular Novel Club
The Association Congress	The Land and Water Club

DEPARTMENT OF EMPLOYMENT

FREDERICK W. ROBINSON, Director

The Employment Department is, in actual practice, a clearing house for young men seeking work, and employers who wish to engage reliable help. From 5000 to 8000 men apply every year. Members of the Association are given 25% discount from the legal rates and special effort is made to notify them when good positions are open.

BOYS' DIVISION

DON S. GATES, City Sec'y

The physical, social, employment, and religious advantages offered to boys from twelve to eighteen years, are similar to those offered to men as stated above. Membership dues for the boys range from one to six dollars according to the privileges desired. Boys' work is also organized in Roxbury.

A S S O C I A T I O N I N S T I T U T E

ANNOUNCEMENT

OF THE

DAY SCHOOLS

1911-12



BOSTON, MASSACHUSETTS

Published by the Young Men's Christian Association

1911

ASSOCIATION INSTITUTE

BOSTON YOUNG MEN'S CHRISTIAN ASSOCIATION

Organized on the University Plan Day, Evening and Summer Schools from the 7th Grade Grammar up to and including work qualifying for a College Degree.

College Preparatory School

A high-grade College Preparatory School consisting of a Grammar School (7th and 8th grades) and a High School fitting for the Colleges. Medical and Dental schools, Massachusetts Institute of Technology, Annapolis, West Point, Lowell School for Industrial Foremen, Law schools and the classified Civil Service.

Day and Evening Sessions

IRA A. FLINNER, A.B., Harvard, Dean

School of Business

Day and Evening Sessions

Offers all of the courses of the regular Business School program, and additional cultural courses preparing for business and admission to our School of Commerce and Finance.

ARTHUR H. DELANO, A.B., Boston University, Dean

Co-operative Engineering School

Day Sessions

Four years' courses of college grade in Chemistry, Mechanical and Civil Engineering, etc., in co-operation with business firms. Students earn while learning.

H. W. GEROMANOS, S.B., Massachusetts Institute of Technology, Dean

Co-operative Business School

Day Sessions

Three years' courses of high school grade in commercial training combined with business experience. Earning while learning.

ARTHUR H. DELANO, A.B., Boston University, Dean

School of Commerce and Finance

Evening Sessions

Established 1907; incorporated 1911. Offers a two years' course in preparation for the Certified Public Accountants' examinations. Provides a three years' course in the science of Business administration. Grants degrees of Bachelor of Commercial Science and Master of Commercial Science.

FRANK PALMER SPEARE, Dean

Evening Law School

Evening Sessions Only

Established in 1898; incorporated in 1904. Provides a four years' course in preparation for the Bar and grants the Degree of Bachelor of Laws.

FRANK PALMER SPEARE, Dean

Polytechnic School

Day and Evening Sessions

H. W. GEROMANOS, S.B., Massachusetts Institute of Technology, Dean

A School of many departments, training students in Engineering and Applied Science. Much of this work is of technical school grade.

School of Electricity

Day and Evening Sessions

WILLIAM LINCOLN SMITH, S.B., Massachusetts Institute of Technology, Dean

Offers one and three years' courses in Applied Electricity and Engineering. Well-equipped shops and laboratories.

Automobile School

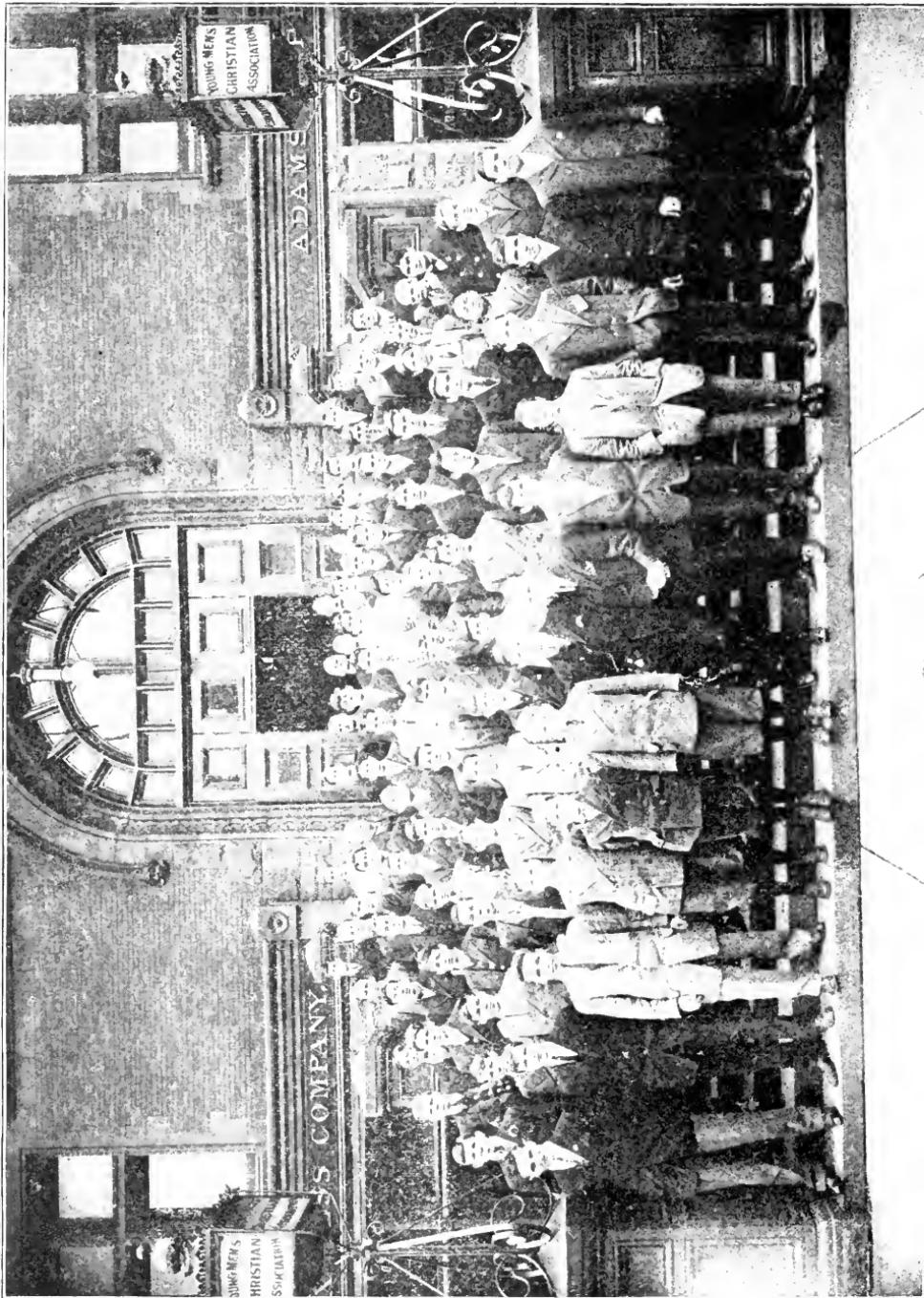
Day and Evening Sessions

Deals with the construction, care and operation of all types of gasoline vehicles; a large staff of teachers; ample equipment and garage.

WINTHROP C. HOSFORD, Dean

For further information concerning any of the above schools or departments, address the Educational Director,

FRANK PALMER SPEARE, 10 Ashburton Place, Boston Mass.



ON THE STEPS OF THE OLD BUILDING

CALENDAR

1911

September 20	Opening College Preparatory, Polytechnic, Electrical and Business Schools.
October 12.	Columbus Day (Holiday).
November 30-Dec. 4.	Thanksgiving Recess.
December 23.	Christmas Recess Begins.

1912

January 1.	Schools open.
February 22-26.	Washington's Birthday (recess).
March 30-April 8.	Spring Recess.
May 30.	Memorial Day (Holiday).
June 14.	Close of School.

Note: Courses in the Automobile School are repeated at regular periods throughout the year.

HOURS FOR CONSULTATION

The management of the Association Institute desires most earnestly to meet parents, boys and young men who are interested in accomplishing the best results. The Deans may be consulted by appointment, and during the school year after 2 P.M. daily, except Saturdays.

The Deans of the Evening Schools may be interviewed after September 11 from 7 to 9 P.M., Saturdays excepted. The Association Building is always open, and some one constantly in attendance who can give general information, but specific advice and final arrangements should be made with the Educational Director, the Assistant Educational Director or the Deans.

The Vocational Counsellor's interviews are arranged by appointment.

OFFICERS OF ADMINISTRATION

ARTHUR S. JOHNSON, *President*

GEORGE W. MEHAFFEY, *General Secretary*

FRANK PALMER SPEARE, *Educational Director*

GALEN D. LIGHT, A. B., *Asst. Educational Director*

OLIVER T. NOON, S. B., *Secretary*

EDUCATIONAL COMMITTEE

JOHN E. ROUSMANIERE, *Chairman*

JOHN SHEPARD

WILLIAM E. MURDOCK

D. CHAUNCEY BREWER

ALBERT H. CURTIS

ADVISORY BOARDS OF DAY SCHOOLS

The following names are a guarantee that every feature will be in accordance with the most modern and progressive educational ideals.

Representing the Colleges

PROF. PAUL H. HANUS, Head of the Department of Education, Harvard College

PROF. WILLIAM M. WARREN, Dean of the College of Liberal Arts, Boston University

EDWARD H. ROCKWELL, Professor of Structural Engineering, Tufts College

Representing the Great Private Schools

REV. ENDICOTT PEABODY, Principal of the Groton School

HARLAN P. AMEN, Principal of Phillips Exeter Academy

Representing the Public School Systems

STRATTON D. BROOKS, Supt. of Public Schools, Boston

FRANK E. SPAULDING, Supt. of Public Schools, Newton

CHARLES S. CLARK, Supt. of Public Schools, Somerville

WILLIAM ORR, Deputy Commissioner of Education

GEORGE P. HITCHCOCK, Principal of Brookline High School

HOBART K. WHITAKER, Principal of Salem High School

Representing the Business Interests

FREDERICK P. FISH, Member of State Board of Education

FRANK A. DAY, Banker

JOHN S. LAWRENCE, Merchant

1910-1911

FACULTY OF DAY AND EVENING SCHOOLS

1910-1911

FRANK P. SPEARE, Educational Director

GALEN D. LIGHT, A.B., Superintendent of Evening Schools

IRA A. FLINNER, PH.B., A.M., Dean of Preparatory School

ARTHUR H. DELANO, A.B., Dean of Business School

LUTHER F. ELLIOTT, Dean of Grammar School

HERCULES W. GEROMANOS, S.B., Dean of Polytechnic School

WINTHROP C. HOSFORD, Dean of Automobile School

WILLIAM L. SMITH, S.B., Dean of Electrical School

FRANK P. SPEARE, Dean of Commerce and Finance and Evening Law School

✓ JOHN B. ALLEY, Commercial Courses

✓ WALTER R. AMESBURY, Commercial Courses

ARTHUR ASHWORTH, Automobile Instructor

✓ WALTER A. BALDWIN, A.B., Physics

ARTHUR A. BALLANTINE, A.B., LL.B., Criminal Law

CHARLES N. BARNEY, A.B., LL.B., Equity

JAMES W. BENNETT, Automobile Instructor

ROYALL D. BRADBURY, S.B., Concrete Design and Construction

CORRIL E. BRIDGES, LL.B., Counsellor, Law School

✓ JAMES BROUGH, Freehand and Industrial Design

H. LARUE BROWN, A.B., LL.B., Agency

EPHRAIM A. BYTHROW, Automobile Instructor

✓ ERNEST P. CARR, A.M., Mathematics and History

ROBERT A. CHANDLER, Automobile Instructor

FRANK H. P. CLEMENT, Instructor in Grammar School

ROY R. COLBY, LL.B., Cost Accounting

✓ JAMES A. COOK, Descriptive Geometry and Applied Mechanics

WALTER W. COOK, Architecture

LESTER W. COOPER, Mechanical Engineering, Drawing and Mechanism and Machine Design

SAMUEL DAVIS, LL.B., Life Insurance

✓ ARTHUR H. DELANO, A.B., Commercial Courses

WILLIAM E. DORMAN, A.B., LL.B., Constitutional Law

LOREN N. DOWNS, JR., S.B., Electricity

CLARENCE E. EBERT, S.B., Mathematics

CARL S. ELL, Surveying

✓ LUTHER F. ELLIOTT, Grammar Department and Civil Service

✓ WALTER L. ESTERBERG, Typewriting

EARL E. FERRY, Applied Mechanics

GEORGE FRENCH, Advertising

LEONARD E. FROST, Automobile Instructor
HENRY E. GATES, Machine Drawing
RALPH M. GEORGE, S.B., Electricity
HERCULES W. GEROMANOS, S.B., Physics and Chemistry
HAROLD S. GRAVES, Mechanical Drawing
CHAUNCEY S. GREENE, Automobile Instructor
FRED G. HARTWELL, Electricity
WINTHROP C. HOSFORD, Automobile Lecturer
FREDERICK C. HOSMER, A.B., English and Science
JOHN W. HOWARD, S.B., Surveying
JOHN R. HUGELMAN, Descriptive Geometry and Mechanics
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HUGH G. KNOWLTON, Window Trimming
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HENRY T. LUMMUS, LL.B., Court Practice
HUGH D. MCLELLAN, A.B., LL.B., Contracts
WILLIAM B. MEDLICOTT, S.B., Fire Insurance
ARTHUR A. MERRILL, Economics
JAMES METIVIER, A.B., Languages
HAROLD A. MEYER, LL.B., Bankruptcy
CHARLES H. B. MORSE, Illustrating and Cartooning
A. J. MOYER, A.B., C.P.A., Accounting Practice
ORLANDO C. MOYER, B. C. S., C. P. A., Accountancy
GUY NEWHALL, A.B., LL.B., Property
CLARENCE L. NEWTON, Ph.B., LL.B., Property
FRED L. NORTON, Automobile Instructor
JOSEPH E. NYHAN, Ph.B., Biblical History and Literature
WM. A. O'BRIEN, Illustrating and Cartooning
RAYMOND T. PARKE, A.M., LL.B., Bills and Notes; Sales
THOMAS E. PENARD, S.B., Mathematics
MARSHALL L. PERRIN, Ph.D., History
CHARLES L. PIERCE, Automobile Instructor
C. J. RANDALL, Chemistry
BURTON L. READ, Investments
CHARLES H. RESTALL, S.B., Railroad Engineering
L. BERTRAND RICE, Automobile Instructor
EDWARD H. RUBY, A.B., Mass. Practice; Bankruptcy
ROLLIN E. SEWARD, Automobile Instructor

✓ ROLLA SHREVES, A.B., Mathematics
✓ — WILLIAM L. SMITH, S.B., Electricity
✓ — ELLWOOD B. SPEAR, A.B., Ph.D., Chemistry
EDWARD C. STONE, LL.B., Corporations
OSCAR STORER, A.B., LL.B., Torts and Evidence
+ ✓ JAMES B. TAYLOR, A.M., English
— GEORGE A. TRUELSON, Architecture
ALBERT E. WEST, Architecture
— ALANSON K. WESTERVELT, Mechanical Drawing
N. ELLIOT WILLIS, Mathematics
FRANK W. WODELL, Voice and Choral Director
SYDNEY R. WRIGHTINGTON, A.B., LL.B., Partnership
CHANDLER M. WOOD, A.M., J.M., Common Law Pleading
OLIVER T. NOON, S.B., Secretary and Asst. Bursar
CHARLES B. GRAY, Office Secretary
KATHERINE M. VINTON, Secretary to the Educational Director

ASSOCIATE SUPERVISORS AND INSTRUCTORS

JAMES BARNES, Assistant Boys' Secretary
FRANK H. CASWELL, Assistant Physical Director
WILLIAM J. CHARLTON, Masseur
DAVID M. CLAGHORN, Social Work Director
ALBERT E. GARLAND, M.D., Medical and Physical Director
DON S. GATES, A.B., City Secretary for Boys
JAMES D. LANGDON, Physical Department Office Secretary
OSCAR MARTIN, M.D., Assistant Physical Director
FREDERICK A. MEADER, D.D.S., Consulting Dentist
EDWIN W. PEIRCE, Religious Work Director
DEAN W. PETERSON, Assistant Religious Work Director
ALTON B. ROBERTS, Assistant Boys' Secretary
ROBERT J. ROBERTS, Associate Physical Director
FREDERICK W. ROBINSON, Employment Director
FRED F. SEWALL, Wrestling and Jiu Jitsu
FREDERICK A. WATSON, Membership Secretary

GENERAL ANNOUNCEMENT

Building a Career

Educators have awakened to the fact that building a career is as much a matter for careful planning and scientific adaptation as the construction of a house, railroad or any great engineering undertaking. The Declaration of Independence states that "All men are created free and equal." They are free in America, and equal in the sight of God, but so far as powers and weaknesses, likes and dislikes, aptitudes and limitations are concerned, there are no two persons alike.

The schools have, however, obliged these dissimilar persons to subscribe to uniform standards and courses, resulting in great waste of effort, heavy shrinkage and a large percentage of "misfits."

The Call to Service

The graduate or attendant at any school or college, upon seeking employment, is asked by a cold, critical world, two clean-cut, searching questions which must be answered; namely, "What can you do, and how well can you do it?" It is the answer which determines one's opportunities, standing in society, income, comforts and fullness of life.

The Business of the Schools

It should be the business of the schools to enable young people, to answer these questions satisfactorily, by giving them sufficient skill in certain lines so that they may look the world in the eye, answer with confidence, and join the onward march, with a reasonable hope of success. The schools should seek to place each student in possession of the accumulated knowledge and experience of his predecessors, actual creative ability, and awaken in him an appreciation of his opportunities and responsibilities.

Present Opportunities

Competition is sharp in all departments of life. There are, however, more and better chances for boys and young men than ever

before, but it takes a better equipped, more vigorous and forceful personality to succeed than in past ages.

Industrial Economics

In this age of high speed machinery, rapid processes, division of labor, utilization of by-products, refined methods of manufacture and merchandising, there is no disposition on the part of employers to labor with those who come poorly equipped, and they give the preference to persons who can at once enter upon their duties with intelligence and skill.

The Old Ideal

The old conception of education was a process of intellectual training intended for gentlemen's sons in distinction from the training given to those who were obliged to earn their living. This view has gradually changed until at the present time, it is almost impossible to discover the line of cleavage between cultural subjects and vocational subjects, one merging into the other. The present application includes much of the culture of former years, combined with vocational training sufficient to enable one to assist in the world's work.

Many Changes Advocated

Many changes in our school system are advocated by educational authorities, but they will be slow of realization owing to the immensity of the problem, the natural conservatism, the difficulty of inaugurating new movements, and the attendant expense.

Freedom of Action

It devolves, as usual, upon institutions which are free of action to inaugurate and put in operation these highly desirable modifications, and the Boston Young Men's Christian Association has enjoyed the rare privilege of establishing, in connection with its great system of education, many novel and wholly modern features which have been advanced by the leaders of education.

THE ASSOCIATION INSTITUTE

The Association Institute is a system of day, evening and summer schools, extending from the seventh grade of the grammar school through the various departments of the high, technical and commercial schools. The Evening Law School and the School of Commerce and Finance grant college degrees, and a number of courses in other schools are of college grade. The Institute is organized as a university, and offers unusual opportunities for all classes of students to obtain just that type of instruction which bears upon their life problems at a time convenient to them, and at a price they can pay.

Evening Schools

The Association Evening Schools have been the pioneers in many movements and are recognized throughout the country as setting the standard for evening instruction.

Day School

In 1909 a day school was established which at once attracted wide attention owing to the incorporation in its program of many features of a novel character which were advocated by the Advisory Board. The Day School is a great educational laboratory where new and approved methods are adopted and worked out.

School Platform

The greatest danger confronting the American people is that the high ideals of our forefathers may be swept away by the tide of material prosperity and give place to customs and standards of living utterly foreign to the sturdy Christian founders of this Republic. The Association Institute is striving to preserve and perfect a type of Christian living the basic principles of which shall be morality, civic virtue and efficiency. It is felt that discriminating persons will appreciate this effort to stem the current which is carrying so many of our boys and young men into the idle, indifferent and lawless classes.

Distinctive Features

The work of the Association Institute is conspicuous for its fine

moral atmosphere, definite purpose, broad scope, careful supervision, high-grade technical instruction, ample equipment, earnest student body, vocational training and definite results. Over thirteen thousand students have attended the school, many of whom now occupy desirable positions as an outcome of the help and inspiration received here.

Every Student Given a Vocation

The Association Institute attacks this problem at the outset by insisting that every boy who enters this school, no matter what his plans may be, shall, in connection with his other work, qualify himself for some definite position of usefulness in the world, thereby increasing his appreciation of honest labor, gaining a stability and purpose in life and an ability to earn a living whenever it becomes necessary for him to do so.

A New Elective System

Students who propose going to college are, of necessity, required to do certain things in a certain manner, and are given slight opportunity for choice. Those, however, who are not to enter college, but desire to prepare here and now for *life*, will be given an unusual opportunity, through our School and its Vocational Department, to plan a career and fit themselves directly and effectively to meet its requirements. A choice of subjects is allowed, based on the student's aptitudes and limitations, and an effort is made to prepare him for that calling which will arouse his best abilities and enthusiasm. Boys, for instance, who cannot master the languages but excel in drawing and mathematics, are largely excused from studies distasteful to them and allowed to specialize in congenial work. An effort is made to turn out first-class draftsmen with the necessary training rather than incompetent, poorly trained students with a slight knowledge of many things but inefficient in all. This elective system avoids the seeking of "snap courses" and develops the boy in such a way that his work becomes a pleasure. Congenial work insures success.

Parents of boys who have proved unsuccessful in other schools, as a result of their inability to conform to certain requirements, will appreciate this opportunity of having their sons pleasantly and profit-

ably engaged in work which will enable them to become appreciative of the value of labor and finally able to perform it effectively.

Co-Operation of Parents and School

The average parent knows nothing about what his boy is doing in school or why he is doing it. The teacher is generally given no information as to the pupil's peculiarities or points of strength and weakness, and he is at once massed with many others and started on a system of training which, while most admirable, may be wholly unadapted to his temperament or ability, and prove of comparatively little value. School authorities, to be most successful in handling students, should know the parents; know the student; know the destination or object sought; watch the development of the pupil carefully in order to ascertain from time to time whether the desired end is being accomplished. These things can only be brought about by co-operation between the parents and the school.

We have perfected an arrangement whereby we remedy this defective system. A blank has been prepared which each parent fills out, giving us complete information as to the history of the boy, his peculiarities, aptitudes, limitations, good qualities, bad habits and educational experience. Another blank has been prepared for the boy to fill out which gives an insight into his likes and dislikes, employment out of school, his ambitions, social and moral tendencies, and other data, thus enabling us to make a satisfactory diagnosis of the case and in connection with a personal interview, to advise intelligently.

Parents' meetings are held frequently for the discussion of educational matters in general and our School in particular. These meetings are addressed by the faculty, school authorities, and business and professional men, in an effort to increase the efficiency of our work and meet present needs.

Employment Department

The Association Employment Department is of marked efficiency. It seeks to act as a clearing-house for competent people

and place them in positions for which they have been especially prepared by our several schools.

The great number of business organizations and employers represented on our various boards make it possible for us to keep closely in touch with the commercial, financial and industrial world and learn of choice openings for promising boys and young men.

With a vocation bureau to advise as to the intelligent choice of a career, an efficient school in which to train for this career, and an employment department in touch with the student body and various industries, our facilities for producing efficient men and starting them in life are remarkably effective.

Interlocking Credits

By our unique system of day and evening schools, it will be possible at any time for boys to drop out of the day school, if obliged to go to work, enter evening classes, and pursue their studies entirely uninterrupted and under the supervision of the same men and with the same methods of instruction.

Faculty

Owing to our advantageous location in an educational center, we have been able to secure the services of a large number of leading representatives of the Massachusetts Institute of Technology, Harvard and Boston Universities, Simmons College and Tufts College faculties as instructors, the work of these teachers supplementing that of a number of high-grade, college-trained experts who give their full time to teaching in the Association Institute.

Social Life of the School

One of the most valuable elements in college and boarding school life is the opportunity for social intercourse. The social life of the Day School is much in evidence, without detriment to the regular work. This is under the supervision of our City Secretary for Boys.

Our Treatment of the Summer Problem

(OPTIONAL)

The Association managers, several years ago, realizing the great

possibilities for good or evil in the summer vacation period, established a number of high-grade boys' camps to meet this need. The camps identified with the Boston Association are three in number: Camp Durrell, on Friendship Island, Maine, a salt-water camp, splendidly equipped with large acreage and trained leadership; Camp Becket, located on a beautiful lake in the Berkshires, with large equipment and faculty, both camps being under the auspices of our State Committee and open to our boys under eighteen years of age; a splendid camp on Lake Winnipesaukee, New Hampshire, known as "Buena Vista." This camp is open to men over eighteen years of age, and affords every facility which such a camp should provide. The rates for all these camps are much less than those of private camps, yet the food, service, equipment, management and results are as good as the best. Boys attending the Association Day School, therefore, may make arrangements to secure accommodations in one of these camps and thus be assured of the finest facilities throughout the entire year. Circulars giving full particulars may be had upon application.

Advisory Boards

The *personnel* of the Advisory Boards is the most forceful endorsement of the work. No other school in New England enjoys the confidence and assistance of such men so prominent in commerce, science and education. These Boards are a guarantee as to the methods and results.

The Ideal School

The Association Day School represents the most advanced educational ideals, and includes in its program the following approved features.

- Vocational Advice
- Vocational Training
- Elimination of Non-Essentials
- Small Classes
- Male Teachers
- Individual Instruction
- Promotion at any Time when Deserved

Training of the Hand and Eye
Systematic Body-Building
Moral Training
Spiritual Development
Training in Civics
Training in Social Duties

In brief, the school offers a systematic, carefully prepared plan, entered upon and pursued after an examination and conference between the pupil and a trained educational expert.

A School for Those Seeking the Best

Parents who desire for their boys the best that science, education, experience and money can provide, will find that the Association Day Schools meet their needs in a satisfactory manner.

Accommodations

The school is now housed at 2, 8 and 10 Ashburton Place, the quarters formerly occupied by the College of Liberal Arts of Boston University. Here, every facility will be found for satisfactory work. The only difficulty is the restricted area which may make it impossible for us to accommodate all who desire to attend. With our system of small classes and individual instruction, it is impossible to greatly increase the size of any department. Early application is, therefore, absolutely necessary if accommodations are desired.

Greeting

To the boys and young men of New England, as well as those beyond its borders, we offer the hand of fellowship. The Association Institute with its various opportunities extends an invitation to unite in this great movement of education, a movement which has meant success to thousands who have attended our evening schools, and will assist in a most remarkable degree those who attend the day school either in preparation for college or for life. To those desirous of preparing themselves to assist in the world's work, these various schools are commended.

THE VOCATION DEPARTMENT

Established 1908

The Vocation Department seeks to aid young men in testing their aptitudes and abilities, choosing an occupation, selecting the best means of preparing for it, and building up a career of efficiency and success.

No step in life is more important than the choice of a vocation. The wise selection of the business, profession or trade to which one's life is to be devoted, and the development of efficiency in the chosen field, are matters of the deepest moment to young men and to the public. These vital problems should be solved in a careful, scientific way, with due regard to each person's aptitudes, abilities, ambitions, resources and limitations, and their relations to the conditions of success in different fields of activity.

Adaptation the Key to Success

If a boy takes up a line of work to which he is adapted he will achieve far greater success than if he drifts into an industry for which he is not fitted. An occupation out of harmony with the worker's aptitudes and capacities means inefficiency; unenthusiastic, and perhaps distasteful labor and low pay; while an occupation in harmony with the nature of the man, means enthusiasm, love of work, and high economic values — superior product, efficient service and success. If a young man chooses his vocation so that his daily work exercises his best abilities, he will have laid a foundation of success and happiness. But if his daily work does not call forth his abilities and enthusiasm, or he does not find in it sufficient opportunity for exercise and development; if his occupation is merely a means of making a living and the work he loves to do is side-tracked into the evening hours, or pushed out of his life altogether, he will be only a fraction of the man he ought to be. Efficiency and success are largely dependent on adaptation. A man could not get good results by using his cow to draw a carriage and his horse for dairy purposes. Yet the difference of adaptability in that case is no more emphatic than the difference in the aptitudes, capacities, powers and adaptabilities of human beings.

The Need for Expert Guidance

Boys and girls are guided to some extent, but finally are allowed to drift in this complex world at will. There is no part of life where the need of guidance is more emphatic than in the choice of a vocation, adequate preparation for it, and the attainment of efficiency and success. The building of a career is quite as difficult a problem as the building of a house; yet few ever sit down with pencil and paper and with the advice of an expert to plan a career and deal with the life problem scientifically, as they should deal with the problem of building a house, taking the advice of an architect.

Boys generally drift into this or that employment by chance, proximity or uninformed selection. The high percentage of inefficiency and change in their working forces, experienced by many merchants, manufacturers and other employers and the cost it entails in employment expense, waste of training, and low-grade service are due largely to the haphazard way in which young men and boys drift into this or that employment, with little or no regard to adaptability, and without adequate preparation, or any definite aim or well-considered plan to ensure efficiency, devotion and development.

No attempt is made to decide for the student what occupation he should choose, but every effort is made to help him to come to true conclusions for himself. Information, inspiration and co-operation, is the motto.

A Double Purpose

Not only does the Vocation Department assist those seeking to choose a career intelligently and to prepare for it, but it has one other most valuable feature, namely, the reassurance of those who have already started on a career. Those of us who have rowed a boat through a fog without a compass and uncertain of our whereabouts can recall vividly the feeling of relief when told by an old fisherman that we were headed in the right direction. It encouraged us to redouble our efforts, and we reached the shore in safety. Boys and men of all ages have come to us feeling that if they could only find some other employment from that in which they were then engaged their work

would be pleasant and remunerative. When assured that they were on the right track and informed that the only means of success was hard, persistent and continuous work in one direction, they started anew, refreshed and with greater confidence.

The cases considered have included grammar school boys, young men of school age, college students and graduates, and a large number of employed boys and men. The general opinion has been that the help given was of great value, and in many cases, we have been able to take persons out of uncongenial, poorly-paid positions, start them in a new direction, happy and in a fair way to achieve success.

Appointments are arranged through the Institute Office and those seeking advice are considered in the order of their application. This is a membership privilege.

PREPARATORY SCHOOL

IRA A. FLINNER, A.M., Dean

FOREWORD

The Preparatory Day School of the Boston Young Men's Christian Association is now in the third year of its history. It opened in September, 1909, with an encouraging enrollment of excellent men from many cities and towns of Eastern Massachusetts who came with a definite aim in view and a determination to make the most of their opportunity. They worked so enthusiastically that contrary to all expectations, the School was able during the first year to fit two men for Massachusetts Agricultural College, one for University of Maine and one for Tufts Engineering School. The second year opened in September, 1910, with a much larger registration which has steadily increased until it has become a problem to find seats for the new applicants. The membership includes men fitting for Harvard, Brown, Massachusetts Institute of Technology, University of Maine, Tufts, Cornell and other institutions.

It is a source of much gratification to those in charge of the school to receive so many words of appreciation as have been uniformly given. Parents and others interested are invited to inspect the school and make such suggestions and criticisms as will tend to further increase its efficiency.

The Whole Boy in School

For many years a school was thought to fulfil its duty to its pupils if it simply looked after the mental development; then the moral side demanded and received attention; then the physical side, and now it is felt that proper equipment for life must include the growth of the fourth side, the spiritual. Heretofore the last has been left almost entirely to the church, but recent investigations have shown that a dense ignorance prevails among young men concerning the leading historical facts and the literature of the Bible, the book that has more profoundly influenced the world than any other book ever written. In recognition of these

facts the Preparatory School has undertaken the four-sided development. It provides the mental advancement in the class-room, the moral progress in the atmosphere of the Association, especially the Boys' Department, the physical development in the required gymnasium practice that is given during the school day, and the spiritual growth in a strictly non-sectarian study of Bible history. In this way the whole boy goes to school. The boy's record is made in all these phases, and it is only after providing for development in all respects that the school has fulfilled its duty to the boy.

Attention is called to the following features which characterize the school: required gymnasium practice, vocational advice and training, small classes, individual instruction, male teachers, high moral atmosphere and attractive environment.

There is manifest at all times an excellent spirit of co-operation between students and instructors which materially adds to the efficiency of the school. Individual instruction, and a remarkably flexible schedule permitting each pupil to take the work most needed in his case are notable characteristics. Every pupil is encouraged to make the greatest progress his ability and power of concentration will permit. His energies and enthusiasm are not stultified, but encouraged and directed. He is stimulated to complete his course in the shortest time compatible with thoroughness and his all-round development. Except in a few cases where pupils enter the school to finish in one year their preparation for a higher institution, a vocational study is required of all. This may be either mechanical drawing, bookkeeping or stenography and typewriting. It is included in the required course so that if by any unforeseen circumstance the pupil is thrown upon his own resources before finishing his high school course or even after graduation, he will be able to earn a living wage. For those who may not need to make such use of this training it will still be found a valuable part of their life equipment.

GRAMMAR SCHOOL DEPARTMENT

In response to the feeling of many parents that a private school where much individual attention is given is preferable to a public

school, a Grammar School Department is conducted in connection with the Preparatory School. Here with male instructors, small classes and careful supervision, very satisfactory results have been achieved. Definite vocational and physical training, together with instruction in first aid to the injured, and an opportunity to hear some of the most prominent men of Boston, in addition to the uplifting environment of the Association, afford the very best all-round development.

Arithmetic

The work in arithmetic is of a practical nature as applied in every-day affairs. Catch problems and laborious processes are avoided, the problems being based on actual experiences in business and industrial life.

English

In some grammar schools so many subjects are crowded into the course that pupils are graduated with a variety of general information but insufficient grounding in the essentials. The English language frequently suffers thereby. Here every effort is made to correct this fault. The work in English is as follows, laying particular emphasis on applied grammar: Montgomery's Heroic Ballads, Longfellow's Courtship of Miles Standish, Burrough's A-Hunting the Deer, Scudder's Life of Washington, Stepping Stones to Literature are studied. We emphasize training in penmanship and memorizing good literature.

Geography

A study is made of the leading countries of the world, their peoples, physical features, climate, products and commerce, particularly our own country; also winds, tides, ocean currents, the seasons and measurement of time.

There will be stereopticon lectures, visits to factories, docks, United States Custom House, etc., in connection with the class work.

History

This study includes a rapid review of the discovery, settling,

early growth and struggle for independence of our country and gives special attention to the political history of the United States, the Civil War, subsequent growth and reconstruction, and present-day problems.

Civics

In the highest grade, a course in civics, of principles of government, is given in connection with history. Much time is devoted to the Constitution of the United States; also state, county, town and city government.

Nature Study

Nature study develops the powers of observation and stimulates original thinking on the part of the pupil as does no other study. "In the early fall, we shall take up marine forms" of animal life, and the life history of some typical insects; during the late fall and winter, we shall study the elements of physics and geology, followed by a study of the germination of the seed, the development and structure of the plant, and the parts and functions of the flower.

The entire course in nature study will be supplemented by frequent excursions to the shore, ponds and fields in order that we may observe nature first hand.

Art

Principles of design: exercises in dark and light, and color arrangement; scale of five tones with ink or charcoal, and with color. Mediaeval subjects in line and flat tones; stained glass; illumination; lettering. Talks on harmony. Illustrated talks on art, history, landscape sketching; drawing and painting from nature.

Music

Voice training and part songs; chorus singing; some attention to work of great composers.

Physical Training

For details see Physical Department page 67.

Vocational Training

A special feature of our Grammar School and absolutely unique, is training in office routine and business practice sufficient to enable the boys to acquire business habits, and be able to earn a living if thrown upon their own resources. This work consists of card cataloging, letter filing, letter copying, operation of duplicating machines, use of the telephone, simple accounts and office routine. The work of the Grammar School, therefore, not only prepares for our several high schools in a most thorough manner, but as before stated, enables the boy if necessary, to secure and hold a position. If employed during the day he may enter our evening classes and go on with his work under the same instruction and system.

HIGH SCHOOL DEPARTMENT

The High School Department of the Preparatory School incorporates the best features of the best schools. Here the individual is neither embarrassed nor retarded by the class, but is encouraged at all times to do his best, with the inspiration that individual help offers. The wide range of studies and small classes with a large corps of skilled instructors give every pupil an opportunity to pursue the line of study for which he is adapted. The work appeals, not only to those fitting for college, but to the older men of promise who desire to acquire an education denied them in boyhood. The atmosphere of the school is such as to encourage earnestness of purpose and strengthen the power of concentration.

The course of study as prepared fits the student for college as quickly as the ability and zeal of the individual warrant. It covers four years, but may be completed in three.

The following features will commend themselves to parents and students: male teachers, small classes, personal instruction, close supervision, firm but kindly discipline, thoroughly modern methods, complete chemical and physical equipment, lectures, practical talks, athletics, gymnastics, social features, vocational training; a faculty of highly trained specialists, representing Harvard, Boston, Brown Universities, Massachusetts Institute of Technology, Bridgewater

Normal School and other institutions. The teachers have been selected not alone for their high scholarship and broad experience, but for their stalwart Christian character and devotion to the cause of education.

The students are in an atmosphere of study and seriousness of purpose unknown in many schools. Expensive habits, incidental charges and laxity are avoided. Great care is taken in guarding the morals of the boys, keeping them pleasantly and profitably employed. This is accomplished by means of lectures, trips, athletics, baseball, football, hocky teams, gymnasium, work in our shops and laboratories and other features.

Courses of Study

The courses, as herein outlined, offer a boy the rare opportunity of obtaining a superior preparation for any college or scientific school in America, and, at the same time, a vocational training which shall so fit him that he may be capable of earning his livelihood whenever he is thrown upon his own resources.

Although the courses are so arranged that the student may in three years receive thorough preparation for college or scientific school, he is, nevertheless, advised to spend the customary four years in his preparatory work, unless he is exceptionally quick to learn.

The minimum number of recitations per week for each student in the four years' course shall be eighteen and in the three years' course, twenty-four. A larger number of hours may be taken upon consent of the Dean.

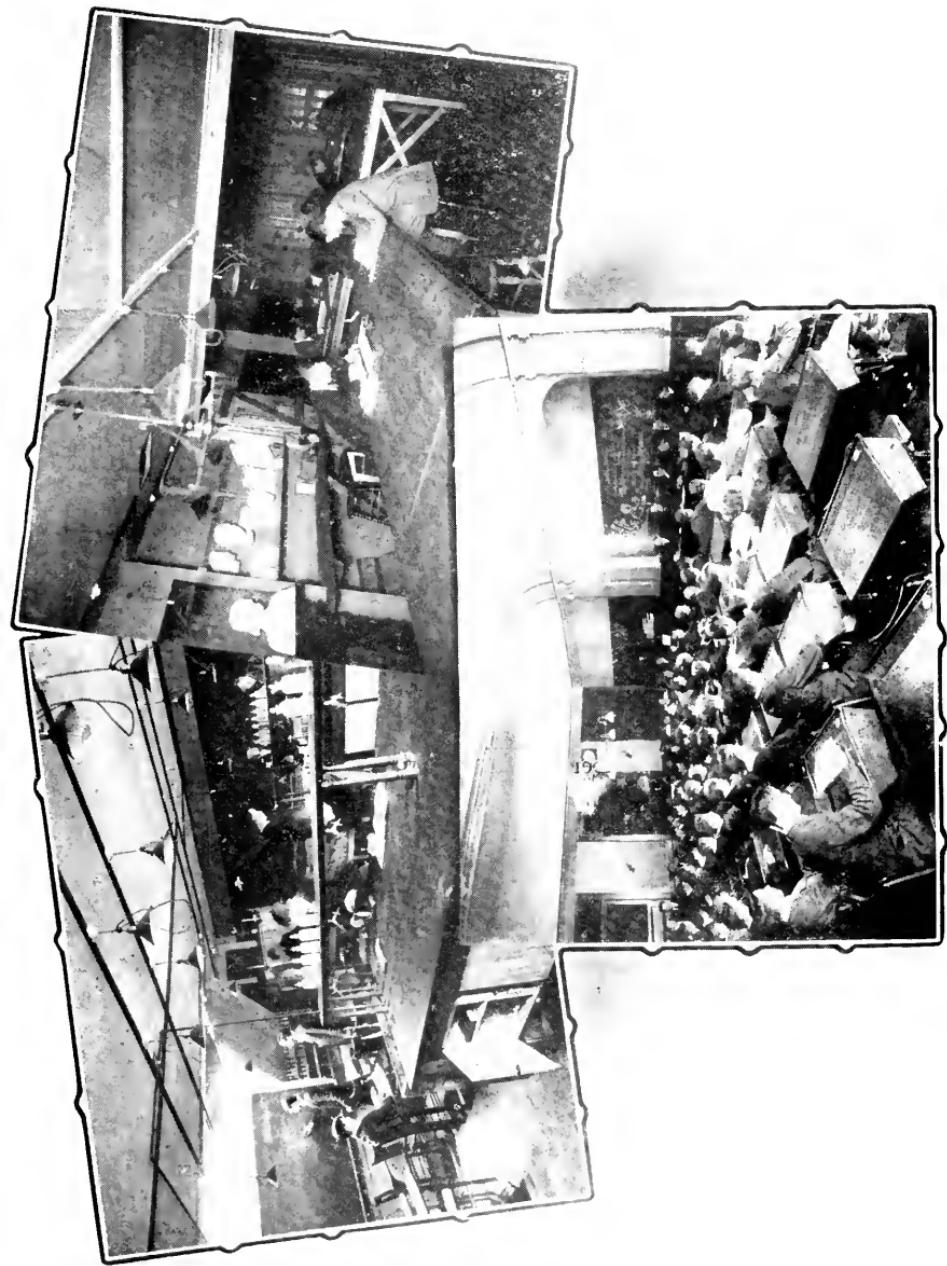
After a student, with the approval of his parents, and under advice of the Dean, has elected to pursue a certain course, he may not change to any other course during the year. At any time, however, when a student fails to do creditable work in his full course, he may be required to drop one or more of his subjects.

At the close of each year students shall make their choice of courses for the following year, which choice shall be adhered to, unless urgent reasons for a change be given to the Dean before the opening of school in the fall.

DRAFTING ROOM

ASSEMBLY ROOM

LABORATORY



Entrance Requirements

Only boys of good character will be admitted to the school. They may enter either on examination or on presentation of evidence sufficient to show that they have received a preparation equivalent to that regularly given by a grammar school.

A student entering on examination shall be required to pass six of the following subjects, of which the first four named must be taken; of the rest he may choose any two in order to make up the required number:

(1) English Grammar	(5) Easy Latin
(2) Arithmetic	(6) Easy French
(3) Geography	(7) Easy German
(4) Spelling	(8) American History
(9) English History	

Applicants for admission to any class beyond that of the first year shall, in order to qualify for such advanced class, be required to pass examinations in High School subjects equivalent to those taken by the class next below that which they desire to enter. Such examinations will be given at the school on the Friday before the closing of the spring term, and the subjects taken may be chosen from the list of courses as it appears in this catalog.

First Year

Required Courses

Figures denote number of recitations per week.

- English (4)
- French or German (3)
- Algebra (5)
- Vocational Work (5)

Optional Courses

- Latin (5)
- French (3)
- German (3)
- Elementary Science (2)
- English History (4) First half year
- American History and Civics (4). Second half year.

Vocational Courses

- Stenography and Typewriting (5)
- Bookkeeping (5)
- Mechanical Drawing (5)

Second Year

Required Courses

- English (3)
- French or German (3)
- Plane Geometry (5)
- Vocational Work (5)

Optional Courses

- *Greek (5)
- Latin (5)
- French (3)
- German (3)
- Spanish (3)
- Physics (5)
- General History (4)
- Botany (3)

Vocational Courses

- Stenography and Typewriting (5)
- Bookkeeping and Commercial Arithmetic (5)
- Electricity (2)

Third Year

Required Courses

- College English (3)
- French or German (2)
- Higher Algebra (3)
- Vocational Work (3)

Optional Courses

- *Greek (5)
- Latin (5)
- German (3)
- French (3)
- Chemistry (5)
- Spanish (3)
- Physics (5)
- Solid Geometry (3)
- Trigonometry (2)
- Modern History (4)
- Mechanical Drawing (2)

Vocational Courses

- Salesmanship (2)
- Economics (2)
- Advertising (2)
- Gas Engines (2)

*Will be offered if three or more elect.

Fourth Year

Required Courses

- College English (3)
- French or German (3)

Optional Courses

- Latin (5)
- Physics (5)
- Chemistry (5)
- Astronomy and Physiography (5)
- French (3)
- German (3)
- Spanish (3)
- Review Mathematics (4)
- Trigonometry (2)
- Mechanical Drawing (2)

OUTLINE OF COURSES

Mathematics

Algebra I

Definitions, fundamental processes, factoring, common divisors and multiples, factors, simultaneous equations and quadratics.

Algebra II

Theory of exponents, radicals and equations involving radicals, ratios, progressions, the binomial theorems, general review.

Geometry I

Books 1 to 4 inclusive of Wentworth's Plane Geometry; original exercises.

Geometry II

Books 6 to 9 inclusive, of Wells' Solid Geometry; original exercises.

Sciences

For outline of science courses see Polytechnic division of catalog page 47.

English

Although the preparation in English is to follow closely the "new

requirements," as recently outlined by the New England Association of Teachers of English, special attention will be given also to the more practical and business uses of the language. A thorough training in how to read accurately, intelligently and appreciatively, will be as much insisted upon as the training in the art of expressing one's thought clearly, forcibly and properly.

Grammar and Composition

English grammar will be given to each class until the work is thoroughly mastered. A great part of this instruction will be furthered through the medium of parsing at sight. Formal compositions, written exercises, business letters, social and business forms, will be given to such an extent that a student will acquire the habit of expressing himself to the best advantage in whatever line of work he may pursue.

Literature

This department not only offers careful instruction in the literature of the best authors, but it also opens to the student a broader intellectual horizon which shall enable him to grasp ideas quickly and with that keenness of discrimination which is the mark of every well-trained mind.

The following books for reading and study are selected from those prescribed by the New England Association. Others will be assigned for outside reading and reports.

First Year

Goldsmith's Vicar of Wakefield, Scott's Lady of the Lake, and Irving's Sketch Book.

Second Year

Bunyan's Pilgrims' Progress, Homer's Iliad, Eliot's Silas Marner.

Third Year

Addison's Sir Roger de Coverly Papers, Tennyson's Idylls of the King, Shakespeare's Merchant of Venice, Julius Caesar.

Fourth Year

Macbeth, Milton's L'Allegro, Il Penseroso, and Comus, Burke's Speech on Conciliation with America, Macaulay's Life of Johnson.

Greek

As there have already been some inquiries concerning Greek, and as there are strong indications that this language is soon to regain its place in the high school curriculum, it will be offered in 1911-12, if elected by three or more.

White's Lessons complete for the first year.

Latin

First Year

Assigned for study: First Year Latin Book, complete; "Caesar," Book I to Chapter 30.

The aim of the first year work is to lay so strong a foundation in Latin that a student may pursue his further work in the language with confidence and intelligent interest, rather than with the feeling of dread which is generally held for the "dead" language. Careful training is given in methods of study. Stress is laid upon acquiring a good vocabulary and a thorough knowledge of inflection and syntax.

Second Year

Assigned for study: Caesar, Book I, Chapters 30-54, and Books II-IV; Nepos, 40 pages.

Careful attention is given the grammatical relation of words in sentences. Case constructions are carefully explained, along with the uses of the subjunctive and infinitive. Prose composition and sight translation are given throughout the year.

Third Year

Assigned for study: Cicero's Cataline Orations, Manilian Law, Archias, Marcellus and Mile; Ovid, 1200 lines; prose compositions and sight translation throughout the year.

Through the mastery of a large vocabulary and the more common synonyms, a facility in reading Latin is striven for. The work of this year is correlated with that of history as far as possible.

Fourth Year

Assigned for study: Virgil, Books 1-6, 8, 9; reading of Cicero at sight; connected prose composition.

This year's work in Latin tends to develop a considerable ease in reading the Latin literature. Poetical constructions are studied, and much practice in reading the hexameter rhythmically is given throughout the course.

Spanish

To meet the growing demand caused by our intercourse with Mexico and South American countries for a knowledge of Spanish, it has been decided to add this course to the curriculum.

Monsanto and Languellier's Practical Course.

French

First Year

Assigned for study: Chardenal's Complete French Course, Guerber's Contes et Legendes.

Second Year

Assigned for study: Chardenal's Complete French Course, Roger's French Sight Reading. Composition, Compayre's Yvan Gall.

German

First Year

Assigned for study: Vos' German Grammar, Guerber's Marchen and Erzahlungen, 'Till Eulenspiegel.

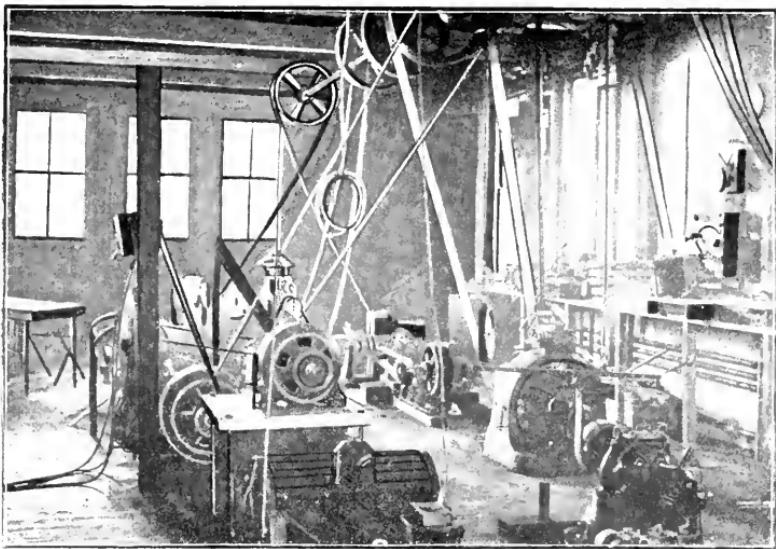
Second Year

Assigned for study: Review of German Grammar, Gore's German Science Reader, Heyse's Niels mit der offenen Hand. Composition.

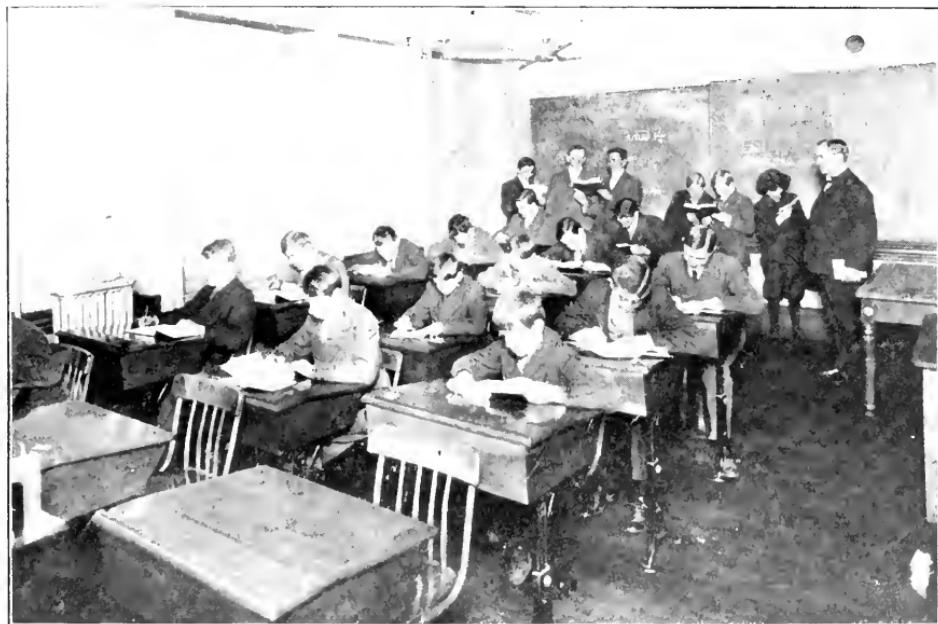
History

Ancient History

Text-books: Myers' History of Greece and History of Rome, Supplementary: the "library method" in preparing work on special topics. Pupil's Outlines for Home Study.



VIEW OF ELECTRICAL SCHOOL



A GRAMMAR SCHOOL CLASS

General History

Text-books: Myers' Short History of Ancient, Mediaeval and Modern Times. Supplementary:—study of the underlying principles of the development and changes in governments and nations, with emphasis laid upon the growth of individual liberty. Use of outline maps.

English History and Civics

Text-books: Montgomery's English History and other books on special periods. The library method to be used in developing certain topics. Pupil's Outlines for Home Study. Rise of representative government.

American History and Civics

Text-books: "Woodburn and Moran's American History and Government." National, state, and municipal organizations. This course presupposes a knowledge of the facts and general outline of American history, so that especial attention may be paid to principles upon which growth and development have been based; this study to be pursued by various suitable methods.

Music

The study of music is one of the most refining influences in any school. The Association Institute places great emphasis on its music course, offering, not only opportunities for private and class instruction in voice, piano and orchestral instruments, but chorus singing for the entire school.

VOCATIONAL COURSES

One of the most valuable features of this required vocational work is that it enables us to discover the natural inclinations of boys, and to advise them intelligently as to whether their greatest success will probably be in industrial, commercial or scientific pursuits; consequently whether they had better attend college, technical school, or best enter business life direct.

The commercial courses for the freshman year consist of book-keeping, shorthand, and typewriting. These are held during the regular school hours between 9 and 2 P.M.

The industrial subjects include mechanical drawing, practical electricity and gas engines. The mechanical drawing and practical electricity are held during the regular school hours; the course in gas engines is held on Tuesdays and Fridays from 2.15 to 4.15, the school work being divided as follows:

First year: Mechanical Drawing, six periods per week.

Second year: Practical Electricity, two periods per week.

Third year: Gasoline engines (stationary, marine and automobile), two periods per week.

First Year. Mechanical Drawing

1. General instruction: six periods per week. Use of drawing instruments, T square, triangles, etc. 2. Simple projections. 3. Nuts and screws. 4. Oblique projections. 5. Penetration of solids. 6. Simple gearing. 7. Isometric projections. 8. Lettering.

Second Year. Practical Electricity

The subjects taught in this course are broadly covered by the general titles; wiring methods, batteries, bells and annunciators, spark coils and ignition devices; or in detail as follows:

1. Wiring Methods: material used, planning of simple circuits, installation methods, protection from various causes of deterioration, and national code.

2. Batteries: principles of action, types, place of each in the art, maintenance and testing.

3. Bells and annunciators: types, installation, maintenance, spark coils, ignition systems, principles of induction, construction of coils, production of spark, action of sparks, magneto devices, primary and secondary batteries, relative usefulness, etc.

Sufficient theory will be given to insure a grasp of the principles involved and to trace intelligently the various causes and troubles.

The method of instruction will be by illustrated lectures, quizzes and actual work in the laboratories.

Outlines of second and third year electrical courses will appear in a later catalog.

Third Year. Gas Engines

The gas engine: names of parts and their uses, theory of explosion, operative principles of the internal combustion engine, various designs, their requirements and care, methods of timing and setting valves; weak compression, causes and remedies; cooling systems with the requirements for care; governor and throttle action; care of ignition system, various methods and parts of equipment, derangements of system and remedies; clutches and types of transmission.

Outline for second and third year mechanical courses will be announced in a later catalog.

There will be no extra charge for these courses if the boy is enrolled as a regular student in the Preparatory School. They cost all others from \$20.00 to \$50.00 each.

SPECIAL NOTE

It will be seen that the trained office boy is capable of earning \$5.00 as against \$2.00 a week paid for the untrained. Should the student be obliged to withdraw, therefore, at the end of the grammar school course, he can support himself wholly or in part.

The estimated earnings at the end of the first year of the high school have increased to \$8 to \$10 per week. This amount assures a decent living. The estimated earnings at the end of the second year of the high school have increased to \$10 to \$14. This is a more desirable income and affords a greater opportunity for advancement and increased comforts. The estimated earnings at the end of the third year increase \$15 to \$20 a week. This is a very good income for a young man, and implies the ability to support himself and small family.

Boys and parents will readily appreciate the wisdom of continuing in the school as long as possible, for by so doing opportunities and

wages steadily increase, and one becomes a much more valuable factor in commercial or industrial life and a more useful citizen.

It should be distinctly understood that these vocational courses are in *addition* to the regular grammar or high school work, and in no way trespass upon the time ordinarily devoted to the program. They are made possible through the elimination of non-essentials, intensive teaching, small classes, personal work and original methods. This training, therefore, is a clear gain over the ordinary school program, and in every way a desirable feature.

VOCATIONAL COURSES OFFERED

Estimated Earning Power Resulting Therefrom

Grammar School

Courses	Periods Per Week	Estimated Earnings
Office Routine	3	\$5 per week

High School

First Year

Courses	Periods Per Week	Estimated Earnings
Mechanical Drawing	6	\$8 to \$10 per week
or		
Bookkeeping	5	8 to 10 "
or		
Shorthand and	8	8 to 10 "
Typewriting	8	

Second Year

Courses	Periods per Week	Estimated Earnings
Practical Electricity	3	\$10 to \$14 per week
or		
Adv. Bookkeeping	5	10 to 14 "
or		
Adv. Shorthand and Typewriting	5	10 to 14 "

Third Year

Courses	Periods per Week	Estimated Earnings
{ Gasoline Engines		
Stationary Automobile	2	\$15 to \$20 per week
{ Marine		
or		
{ Salesmanship		
Economics	2	15 to 20 "
{ Advertising		

SCHOOL OF BUSINESS

ARTHUR H. DELANO, A. B., Dean

FOREWORD

We have planned our Day School of Business to meet the needs of two classes of students, the young man and the boy.

The first class is made up of graduates of high schools, and of boys of mature age who have had some experience in the business world. It has been our observation that many boys, upon leaving high school, find that they lack training along any particular line. As soon as they realize this lack, they look around for an opportunity to perfect themselves in some branch of business training. There are also boys who leave school at the end of their grammar school course thinking themselves equipped for work. Later they find that further study would increase their earning capacity. We have arranged the one year courses for these students, confident that they, with a developed strength and capacity of application, can get a working knowledge of bookkeeping, shorthand, or both subjects in one year.

The second class is made up of boys of immature age; those just ready for the high school. For them we have planned the three-year course. This is more general than the one-year courses and the boy completing it will have received the advantage of a high school training along with the added asset of specialization. The graduate of the three-year course should be able to fill satisfactorily a position as stenographer or bookkeeper, the salary being determined by the ability of the student. No boy graduated from this course should find difficulty in obtaining immediate employment.

Boys not graduates of grammar school are not admitted to regular standing in this department. If, however, they can show sufficient qualifications to pursue special courses successfully, they will be allowed to do so. After taking work in this school, if they wish to be admitted to regular standing, they can do so by making up back work in our Grammar School.

Physical training and attendance at regular exercises of the Day

School are required of all students. Exceptions to this will be made only in rare cases and then only with the sanction of the head of the department.

COURSES

One-Year Shorthand

Figures denote recitations per week

Shorthand	5	Business English	3
Typewriting	5	Commercial Geography	2
Penmanship }	5		
Spelling }			

One-Year Bookkeeping

Bookkeeping	10	Business English	3
Arithmetic	3	Commercial Law	2
Penmanship }	5	Commercial Geography	2
Spelling }			

One-Year Shorthand-Bookkeeping

Shorthand	5	Penmanship }	5
Bookkeeping	5	Spelling }	2
Typewriting	5	Commercial Law	2
Business English	3		

Three-Year Shorthand-Bookkeeping

First Year

English	3	Penmanship }	5
Arithmetic	3	Spelling }	5
Commercial Geography	2	Shorthand	
Typewriting	5		

Second Year

Business English	3	Penmanship }	5
Bookkeeping	5	Spelling }	2
Shorthand	3	Commercial Law	3
Typewriting	5	French or German	

Third Year

Bookkeeping	5	English	3
Shorthand	3	Spanish	5
Typewriting	5	French or German	3

Penmanship and Spelling

There are no two things in which the ordinary young man or boy, entering an office, is more deficient than in spelling and writing. With this fact constantly in mind we have planned a combined course of these two subjects in which we teach the correct position of body and hand, the correct form of letters, ease, rapidity, and accuracy in writing words.

Commercial Arithmetic

This is an advanced course in arithmetic in which emphasis is placed on those rules and principles which have been found to be of the most benefit to one employed in a bank or counting house. Drill in simple computations is given to develop dexterity and quickness, after which are taken up fractions, percentage and its applications, commercial discounts, gain and loss, marking goods, commission and brokerage, property insurance, interest, bank discount, partial payments, banker's daily balances, savings-bank accounts, exchange, stocks and bonds, life insurance, storage and partitive proportion and partnership. As the basis of our work we use Moore and Miner's Practical Business Arithmetic and Buch's Rapid Calculation Pad.

English

English of the first and third years of the three-year course will be taken up in the High School department of our school. That of the first year will consist of theme writing and the study of the easier forms of classical literature. The training in this course is intended to be general and to develop, in the student, a love for standard authors. That of the third year will be a continuation of the first year on more advanced theme work and study of the less easy forms of literature. The aim in both these courses is culture.

Business English

As the aim in the preceding course was for culture, in this course it is for practical usefulness. Many students acquire love for the best literature without being able to express themselves in the ordinary

forms of English. Here we train the student in the numerous forms of letter writing, such as letters of application, letters of recommendation, letters ordering goods, sending of remittances, and, in fact, all forms of business letters. Emphasis is placed on punctuation, details of construction, capitalization, and choice of words.

Bookkeeping

This course comprises all the features necessary for a knowledge of bookkeeping as we see it practised today. The first work is in becoming familiar with the principles of debit and credit, and in keeping a journal-day book. This is followed by the learning to post, the making of trial balances, closing of ledgers, and the making of business and financial statements. The student is made to understand the uses of the different forms of negotiable paper, to make out bills, and to handle in-coming vouchers and money. So far as is practicable he is taught the routine of the ordinary business house and bank. He is taught to use the various books required in the following lines of business: hay and grain, produce and commission, grocery, dry goods, manufacturing and banking. Double entry forms the greater part of the work, but single entry is treated to the extent of the students obtaining a working knowledge of it.

Shorthand

There is no field which offers so great opportunities with so little outlay as that of shorthand. The demand for young men stenographers has never been filled, nor is it likely to be at present. Our aim is to put out as many first-class stenographers as possible, confident, in doing so, that we are of a two-fold service. We are supplying a constant demand, and we are starting young men in work that is not only pleasant and profitable in itself, but it can be made a stepping-stone to the best positions in the business world. The Benn Pitman system of shorthand is taught, as we have found that no system offers a wider field for advancement than does this. Students vary in their ability to master the subject. Some spend two or three years studying it, along with other work, while others acquire a working knowledge of it in two or three months. The value of the course is increased by

means of the phonograph, the student being able to get a larger amount of dictation, than is ordinarily possible.

Typewriting

Touch typewriting, the most approved method, is employed, the student being taught by means of blank keys, and blind-folding. By this mode of writing one is enabled to obtain both maximum accuracy and maximum speed. Preliminary work consists of simple finger exercises to develop dexterity and familiarity with the keyboard. This is followed by thorough handling of business correspondence and law papers. The student is made to understand the different parts of the machines, and he is required to take such care of the typewriter as he will need to do later in actual office practice. The school is equipped with the latest models of the standard typewriters.

Commercial Geography

This course consists of the study of commercial conditions, the products of the different countries — special attention being given to those of this country and its possessions, and the places of the different countries in commerce. Natural factors in commerce will be brought out and due weight given to cause and effect.

Office Routine

One of the distinguishing features of our School of Business will be the attention given to office routine and business practice. Our object is to fit students so completely that they may enter an office well equipped and capable of rapid advancement. We have ample equipment consisting of letter-presses, filing devices, card catalog systems, duplicating machines, etc., a knowledge of which will add materially to the student's value in business life.

Spanish, French and German

Spanish is offered that the student may qualify successfully for positions in our insular possessions, Mexico and South America. Our aim is to give training both in talking and writing the language. For information of French and German see page 30.

SCHOOL OF CO-OPERATIVE BUSINESS

ARTHUR H. DELANO, A.B., Dean

ANNOUNCEMENT

In October, 1909, the management of the Boston Young Men's Christian Association established a school of Co-Operative Engineering, offering an opportunity for high school graduates to obtain a technical school education at no expense to themselves or parents through what is termed "co-operation." In this plan, two students are employed by one concern, A serving one week in the shop, or factory, while B, his mate, is in school. At the beginning of the second week the boys exchange places; B is in the factory and A in school. This is kept up throughout four school years of thirty-six weeks each. When the school is not in session, both boys give their full time to the business concern with the exception of their regular two weeks' vacation. The boys are paid so much per hour for their services when employed, which is sufficient to meet their tuition and leave a substantial balance for clothing and other expenses.

The success of this experiment led us in 1910 to the establishment of a new school known as the Co-Operative School of Business. The plan is identical with that of the Engineering School except that the course is three years in length, the boys are grammar school graduates, or high school pupils, and the wages are four dollars per week for the first year, five dollars per week for the second year, and six dollars per week for the third year, while employed.

SPECIAL FEATURES

This system enables ambitious boys of pronounced ability to obtain a liberal commercial training. It enables them, in addition to earn their clothes and traveling expenses. It enables business concerns to obtain and have especially trained for them, high-grade boys who are closely in touch with them throughout their term of

study, and necessarily far better qualified for promotion than those with haphazard training and experience.

Period of Employment

The regular school course covers a period of three years. Should any boy prove incompetent or unruly in school or in the business which he has selected, it is understood that after due warning he be dropped by the firm and school.

Duties When Employed

It is understood and agreed to by the boys that when employed they keep the same hours and observe the same regulations as other employees; that they receive no favors, and are to perform every task assigned promptly and cheerfully.

Duties In School

It is understood that when in school the boys give strict attention to their studies, comply with all the school regulations, learn their home lessons, and in every way seek to obtain as much assistance from their teachers as possible.

Duties During the Vacation Period

During the months when the school is not in session, the boys give their full time to the business house, with the exception of the regular two weeks' vacation. During the weeks spent in school, Saturdays are holidays. During the weeks when employed, Saturdays are observed as by the other employees.

Tuition

The tuition is \$75 per year, payable \$10 at the time of registration, and \$8.00 per month, beginning October 1 until paid.

The use of books, stationery, supplies and incidentals are included in the tuition. There are no extras.

Selection of Business

Boys desiring to enter any particular lines of business will be

given an opportunity, after conference with the Vocation Counsellor, to select the line of work and firm which most nearly meets their special aptitudes. After having started upon any line, change to another line will not be possible without special permission of the Dean, Educational Director and the two employers involved.

Records

Careful records of attendance and progress, both in the school and business house, will be kept, and bi-monthly returns made to the parents.

Course of Study

The following is the course of study. It is, however, subject to change and modification, based upon experience:

First Year	Hours per week
Arithmetic	3
Rapid Calculation	2
Penmanship {	5
Spelling }	
English	5
Commercial Geography	3
Bookkeeping	5
Office Appliances {	2
Office Routine }	
Second Year	Hours per week
Penmanship {	5
Spelling }	
Arithmetic	2
English	3
Bookkeeping	5
Shorthand	4
Typewriting	4
Commercial Law	2
Third Year	Hours per week
English	3
Bookkeeping	4
Shorthand	4
Typewriting	4
Salesmanship	4
Publicity {	
Advertising }	3
Economics }	
Window Dressing	1

Plan of Work

The students while working in a business house follow plans laid out by the men of that house. These plans differ according to the nature and needs of the individual houses, and the capacity and ability of the students. With some firms the students are given general work. In this way they are brought in contact with and learn all branches of the business at once, their promotion, though not necessarily their wages, depending upon facility in handling the problems of business routine. With other firms there is a definitely laid out course covering such work as in the bundle department; the receiving, checking and marking department; the stock department from which goods are gotten out and delivered to the sales departments; and the sales department. In all instances the ability of the student is the dominant factor in determining length of time spent on one kind of work.

Type of Boys Desired

As the school is intended to train boys who will, it is hoped, finally take their places as leaders in commerce, only boys of pronounced talent, enthusiasm, ambition and willingness to work are received. A grammar or high school education or the equivalent is necessary.

CO-OPERATING FIRMS

The following firms are co-operating with us:

C. A. Browning & Company
Brown, Durrell Company
Cobb, Bates & Yerxa
Dennison Mfg. Company
Enterprise Rubber Company
William Filene's Sons Company
James A. Houston Company
Jordan Marsh Company
National Shawmut Bank
Remington Typewriter Company
Shepard, Norwell & Company

Underwood Typewriter Company
R. H. White & Company
Edison Electric Illuminating Co.

Other firms are being added to this list as we find boys desiring other lines of business.

CO-OPERATIVE BUSINESS EDUCATION

WHAT IT MEANS TO THE BOY

Upon completing a grammar or high school course, and seeking to enter business, every boy is confronted by several difficulties:

1. To secure any sort of a position.
2. To find a position which suits his particular talents and needs.
3. To find a firm that will treat him with consideration and promote him on his merits.
4. To find a firm that is absolutely interested in its help, and will take a personal interest in him.
5. To find a firm that is willing to teach him the business from the ground up instead of keeping him working at low wages on some unattractive line with slight hope of advancement.

Thousands of boys experience these difficulties even when graduates of the best schools, and those who are not graduates are confronted by a much more serious state of affairs.

It is customary to pay boys one hundred dollars for the first year and some firms let the boy go at the end of the year and take on a new one. A boy having this experience is discouraged and finds himself at the end of the year with little or no valuable experience, and incapable of advancement. Co-operative education reverses all these conditions.

First, the boy is located with a firm by the School. This firm is interested in him from the start and desires to give him every opportunity to learn the business from the bottom to the top, and qualify for a responsible position when sufficiently trained and mature. He is paid \$4.00 a week the first year while working, \$5.00 the second year, and \$6.00 the third year. At the end of three years, the boy finds himself in the employ of a concern which knows him, knows his work,

has sized up his ability, and for which he has been specifically educated in school and trained in business. Every opportunity, therefore, is his for rapid advancement, success being within his reach provided he can measure up to the requirements.

WHAT IT MEANS TO THE EMPLOYER

The cry going up all over the land is for boys who can and will work intelligently, obey orders cheerfully, and take an interest in the business. Co-operative education brings the business firm and the ambitious boy together in a bond of mutual helpfulness. There is a working agreement, a striving to attain a desired end, and when both parties are sincere and the boy is of the right sort, success is largely assured.

Co-operative education, in a word, makes ideal conditions possible in large measure, and the hearty endorsement of the plan wherever undertaken and the marked success³ of our Co-operative Schools lead us to present this department to the public with confidence.

RULES AND CONDITIONS

Under which Students taking the Three-Year Co-operative Course of Business at the Association Institute are received for instruction in the Business of

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1st. The applicant for enrollment under this agreement must be able to satisfactorily meet the requirements for entrance.

2nd. The student is to work continuously, well and faithfully, under such rules and regulations as may prevail commencing with the acceptance of this agreement, in such capacity as specified below:

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3rd. The student shall report to his employer for work every alternate week when the school is in session, except during vacation periods provided below, and he shall be paid only for actual time at such work.

4th. The student shall have the privilege of a vacation without pay for two weeks during the summer.

5th. The employer reserves the right to suspend regular work wholly, or in part, at any time it may be deemed necessary and agrees to provide other work at the regular rate of pay, for the student during such period.

6th. Should the conduct or work of the student not be satisfactory to employer, or to the Institute, he may be dismissed at any time without previous notice. Dismissal by the employer carries with it dismissal from the Co-operative class work at the School.

7th. The compensation for work shall be as follows:

For the first year, \$4 per week.

For the second year, \$5 per week.

For the third year, \$6 per week.

8th. The above wage scale shall begin as soon after enrollment of the student in the school as he begins work.

Arrangements for entering the school can be made with the Dean.

POLYTECHNIC SCHOOL

HERCULES W. GEROMANOS, S.B., Dean

FOREWORD

Such institutions as the Massachusetts Institute of Technology, Harvard University, Tufts College and other great schools are yearly turning out large classes of highly-trained experts. Graduation from these schools implies thorough preparation in a high school, and from four to eight years in a technical school, and those enjoying these advantages take their positions in the professional world and become its leaders. There are, however, hundreds of men, who, for various reasons, are unable to avail themselves of these opportunities, yet they desire to qualify for the positions just below those usually held by the high-grade technical school graduates. There has been, up to the past year, no opportunity during the day for such men, but we have reached a solution of the problem by the projection of our great Evening Polytechnic School into the day.

Able Assistants Necessary

It is a well-known fact that a great general can win no campaign without intelligent lieutenants — those who receive and carry out orders successfully — and it is so in the industrial world. Unless the highly skilled engineer has reliable, well-trained assistants, he is powerless. Such assistants have heretofore come up from the ranks by a laborious and unsatisfactory process which has made it impossible for them to receive systematic, definite and thorough instruction. The Association Polytechnic School was established twelve years ago for the express purpose of providing for this class of men, and has met with marked success. The claim is not made that the courses offered are as broadly comprehensive as those of the great technical schools. It has been proven, however, that the practical experience of our students, their desire to learn, appreciation of relative values, ambition, and the form of instruction they receive from men thoroughly acquainted with modern engineering practice, have enabled many of

them to accomplish remarkable results. By giving work of the same nature during the day, we are striving to meet the needs of those who cannot enter or remain in a great technical school, but desire to enter industrial lines. The courses offered consist of many of those of our evening polytechnic department, and as many additional day courses as the patronage demands.

The Zurich Plan Adopted

One of the great technical schools of Europe, the Polytechnicum, located in Zurich, Switzerland, has established a unique system by means of which the best men in the various professions are secured as instructors. This is done by scheduling students for lectures during the day and evening, thereby offering instruction by men of broad experience, in addition to that of a strong day faculty. Such men bring from the engineering office and great undertakings, generally, the most recent ideas and applications. The value of such instruction is inestimable. We are particularly fortunate in being able to incorporate this idea in connection with our Polytechnic School.

Our close proximity to the Massachusetts Institute of Technology, Harvard and Boston Universities, and Tufts College, makes it possible for us to secure some of the best teachers in the country for certain hours, thus enabling us to offer instruction of a quality which would be utterly beyond the financial resources of the ordinary school which found it necessary to take these men for their full time. The courses as announced are intended to turn out first-class mechanical and architectural draftsmen, commercial chemists, mathematicians, etc. Many graduates of our evening courses are holding positions as draftsmen, superintendents of construction, town engineers, assistant city engineers, factory inspectors, chemists, and are also with our great trunk railroads, steamship companies and other corporations. We are confident that the Day Polytechnic School will equal this record.

In the fall of 1909, our Day Polytechnic School was established, and the past year has given abundant proof that our latest project was one that was much needed. Many men and boys have availed themselves of the opportunities we offer for further study along special lines, and the School has met with unqualified success. This year we

enlarge its scope by offering advanced work along certain lines in addition to the courses which were given the past year. Several of these courses are of professional school grade.

In addition to the regular courses of the Polytechnic School, a three years' Electrical Course is offered. This course is of such character that a grammar school graduate, or a boy in the first, or second year of the high school may take it and fit himself in three years to be a foreman or assistant superintendent of electrical work. One who already has had sufficient previous instruction, may complete the work in less than the required three years. This course is much broader than that of the Evening Electrical School, and graduates from it may reasonably expect even better success than has been attained by the graduates of our Evening Electrical School. Those who complete this course will receive diplomas upon graduation.

This course in Electricity is under the general supervision of the Dean of the Polytechnic School, and all inquiries in regard to it should be addressed to him.

DEPARTMENTS AND COURSES

Mathematics

Algebra I

Definitions, fundamental processes, factoring, common divisors, and multiples, simultaneous equations and quadratics.

Algebra II

Theory of exponents, radicals and equations involving radicals, ratios, progressions, the binomial theorems, logarithms and slide rule and general review.

Geometry I

Books I to IV of Wentworth's Plane Geometry; original exercises.

Geometry II

Books VI to IX inclusive of Wells' Solid Geometry; original exercises.

Plane Trigonometry

Definitions of the trigonometric functions as ratios; their line representations; trigonometric transformations; circular measure of angles; inverse trigonometric functions; theory and use of logarithms; and areas and solutions of right and oblique triangles.

Analytical Geometry

Co-ordinates, loci, the point, the straight line, the circle, the conic sections, general equation of the second degree, co-ordinates in solid analytic geometry and interpretation of equations. The course is illustrated by practical problems.

Mechanical Engineering Drawing

Mechanical Drawing I

An elementary course for first year students in mechanical drawing consisting of the following:

- (1) General instruction in the use of drawing instruments as T squares, triangles, etc.
- (2) Simple projections.
- (3) Nuts and screws.
- (4) Penetration of solids.
- (5) Simple gearing.
- (6) Isometric projections.
- (7) Lettering.
- (8) Simple working drawings made from the object.
- (9) Tracing.
- (10) Blue printing.

Machine Drawing

The aim of the course is to teach the proper way of making the necessary dimensioned drawings for use in practice.

The instruction includes: (1) The making of sketches of the parts of a machine from measurements. (2) The detail scale drawing from the sketches and a tracing. (3) An assembly drawing of the machine. The course will also include problems in belting, in cam design for men taking practical mechanics, and problems in valve gears for those desiring to take up the theory and design of plain slide valves, double valves and link motions.

Lettering

Mechanical lettering is of the utmost importance to all engaged in

any line of drawing. No matter how well made a drawing may be, poor lettering will ruin its appearance, so that the student who expects to ever become a really valuable man, must be expert not only in draughting but in lettering also.

Descriptive Geometry

Descriptive geometry with applications: geometrical construction; applied sketching.

Chemistry

Elementary Chemistry

The course comprises the chief physical and chemical characteristics the preparation and the recognition of the following elements and their chief compounds: *oxygen, hydrogen, carbon, nitrogen, chlorine, bromine, iodine, fluorine, sulphur, phosphorus, silicon, potassium, sodium, calcium, magnesium, zinc, copper, mercury, silver, aluminium, lead, tin, iron, manganese, chromium*.

More detailed study is confined to the italicized elements and to a restricted list of compounds, such as water, hydrochloric acid, carbon monoxide, carbon dioxide, nitric acid, ammonia, sulphur dioxide, sulphuric acid, hydrogen sulphide, sodium hydroxide.

Attention is given to the atmosphere (constitution and relation to animal and vegetable life), flames, acids, bases, salts, oxidation and reduction, crystallization, manufacturing processes, familiar substances (illuminating gas, explosives, baking powder, mortar, glass), metallurgy, steel, common alloys, porcelain, soap.

Combining proportions by weight and volume; calculations founded on these and Boyle's and Charles' laws; symbols and nomenclature (with careful avoidance of special stress, since these are non-essential); atomic theory, atomic weights and valency in a very elementary way; nascent state; natural grouping of the elements; solution (solvents and solubility of gases, liquids and solids, saturation); strength (activity) of acids and bases; conservation and dissipation of energy; chemical energy (very elementary); electrolysis. Chemical terms are defined and explained, and the pupil enabled to illustrate and apply the ideas they embody. The theoretical topics are not

intended to form separate subjects of study, but are taught only so far as is necessary for the correlation and explanation of the experimental facts.

The course in chemistry includes individual laboratory work, comprising at least forty exercises. By this is meant that the experimental work actually performed by the student in the laboratory amounts to not less than eighty actual hours.

Physics

Elementary Science

This is an elective study for the first year class. The course is arranged as an introduction to science, and is intended to give the entering class a broad and helpful view of the physical sciences, partly to enable them to make a more rational selection of the electives that follow, but more particularly to arouse and stimulate their interest along scientific lines and increase their fund of information relative to their scientific environment. The work is based on illustrative lectures. Each lecture is a demonstration and each pupil reports the lecture in a book provided for that purpose. A careful quiz and discussion follows the lecture. The work is qualitative except a few simple quantitative experiments performed by the pupils. The phenomena thus shown are connected with the pupils' experiences outside of school. The aim is to establish the true relation between the pupils' experiences and the scientific fact. A clear but simple explanation, which is at the same time scientifically correct, is developed.

Excursions are made with the instructor to such places as an electric light plant, a pumping station, manufacturing places, etc. The choice of topics is not so much emphasized as is the method of presentation which is simple, direct and scientific. This course aims to develop the sense of power that will lead the student to appreciate scientific truth and to draw legitimate conclusions from direct observation and simple data.

Physics, Elementary

This course is introductory to the work in advanced physics and the class meets three times a week. The subjects covered are the same

as those taken up in the advanced course, only they are covered briefly and illustrated by lecture experiments. The aim of the work is to make the student familiar with the fundamental laws and facts of physics, that he may be prepared for the more thorough and complete course given under the head of advanced Physics in the following year.

Considerable time is spent on mensuration and the student is made familiar with the metric system.

Physics, Advanced

Students are taught the more important phenomena in physics, with the principles involved in the explanation of them. They must in addition to the text book work, complete a year of laboratory practice and be prepared to work simple numerical problems upon the laws of falling bodies; upon the pendulum; upon properties of liquids and gases; upon thermometry and calorimetry including specific heats and heats of fusion and liquefaction; upon the relations of current and electromotive force and resistance; upon velocity, wave-length and resonance in sound; upon refractive indices, focal lengths, and the sizes and locations of images in optics.

The laboratory work is chiefly quantitative in character, and consists of about forty exercises, or experiments.

Mechanics

Mechanics

A study of statics, consisting of the general methods and applications of statics including the determination of reactions, stresses in frames; of distributed forces, centre of gravity; of moment of inertia, radius of gyration of plane areas and solids including principal axes and principal moments of inertia; of kinematics and dynamics including the equations for uniform and varying rectilinear and curvilinear motion, centrifugal force, pendulum, rotation, momentum, impact, work, power and kinetic energy.

Art Department

Freehand Drawing

A very complete course is offered and splendid advantages are

provided. The work is adapted to the requirements of each individual student, so far as is practical and consistent with a thorough training in freehand drawing.

Industrial Design and Interior Decoration

The courses in industrial design and interior decoration are especially helpful to those students who anticipate being engaged in such arts and crafts work as wood and stone carving, wrought and bent iron work, brass and copper work, stained glass, furniture and drapery, interior decoration, book covers, wall papers, fabrics and other allied industrial arts.

Geology

Dynamical Geology

This course introduces students of Civil Engineering to earth movements and the various terrestrial applications of solar energy. The greater geological processes, erosion, sedimentation, deformation, and eruption are discussed by means of lectures illustrated by maps, diagrams, specimens and stereopticon.

THREE YEAR ELECTRICAL COURSE

First Year

	Hours per week		Hours per week
Review Arithmetic*	3	Higher Algebra	3
Algebra	5	Solid Geometry	3 for $\frac{1}{2}$ year
Business English	3	Trigonometry	3 for $\frac{1}{2}$ year
Spanish*	3	Machine Drawing	6
Mechanical Drawing	6	Physics, Advanced	5
Physics	5	Spanish*	3
Electricity	2	Electricity	4
Plane Geometry	5		

Second Year

	Hours per week
Analytic Geometry	4 for $\frac{1}{2}$ year
Calculus	4 for $\frac{1}{2}$ year
Spanish*	3
Chemistry	5
Mechanics	3
Machine Drawing	6
Electricity	4
Gas Engines	2

*Elective

Course In Detail

General Electricity (1st year)

Simplest electric phenomena. Opposite charges, early electric theories. The Electron Theory. Conductor and insulator. Field of force. Law of inverse squares. Influence. Electrophorus. Influence machines. Capacity and condensers.

Current flow. Electrolysis. Electrolytic dissociation. Voltaic battery. Modern theory of action. Electromotive force. Polarization. Reversible and irreversible cells. Types of batteries. The storage cell. Ohms Law, resistance. Divided circuits, etc. Heating effects of current.

Electric transfer of energy. The Joule and Watt.

The Magnet. Lode-stone. Formation of Magnets. Permanent and temporary magnets. Field of magnet, magnetic lines of force. Magnetic induction. The earth magnetized. How it becomes so. The electron current in the atom. Compass and variations. Dip. Theory of magnetism.

Oersted's discovery. Magnetic effects of a current. Field surrounding a current. Mutual action of current and magnet. Mutual action of two currents. Electro magnets. Electro-magnetic induction. Lenz's law.

Light, electric and heat radiation compared. Hertz's experiments, Maxwell's theory. Etheric waves. Radiant energy.

Electrical Measurements. (2nd year)

Necessity of measurement. What measurement is. Making of measurements. Direct and indirect measurements. Accuracy. Precision. Sources of error. Constant and variable errors. Laws of deviations. Curve of error. Average deviation. Huge error. Mistake. Representation of results. Analytical and graphical methods. Curve plotting. Choice of scales. Interpretation of curves. Interpolation and extrapolation.

Units. Legal electrical units. Working standards. Instruments: Ampere and Volt meters. Wattmeters. Bridges, etc. Sensitive galvanometers. Mirror and scale. Shunts, and other devices.

Methods of measurement. Current. Electromotive force. Resistance. Power. Capacity. Magnetic induction. Permeability, etc.

Calibration of instruments. Complete and detailed example of correct experimentation.

Principles of Wiring, etc. (2nd year)

Preliminary considerations. Fire risk. National code. Examples of electrically caused fires. Systems of distribution. Two-wire; three-wire; multi-wire. Tree and pocket wiring. Drop in the line. Calculation of line loss. Size of wire for a given potential drop. Uniform feeder drop. Circular mils.

Systems of Wiring. Cleat Moulding. Rigid and flexible conduit. Knob and tube.

Wiring a house. Preliminary. Laying out circuits. Mains. Service switch. Cutout and meter. Switches. Control of lamps from different points. Sizes of Wire. Carrying capacity. Tests.

National Code; its rules, their reasons for being, inspection, etc., in detail.

Wiring fittings, appliances, switches, cutouts, fuses, cabinets, outlet boxes. Freak appliances, etc.

NOTE. In this course it is hoped to have several special lectures by inspectors, insurance men, etc.

Dynamo Machinery

Magnetic field. Flux density. Magneto-Electric induction. Magnetic permeability. Magnetomotive force. Reluctance. Magnetization curves. Air-gap. Joints in circuit. Heat effects. Residual magnetism. Cycles of magnetization. Hysteresis.

The Armature. Ring, pole, drum, disc. Field magnet excitation. Magneto. Series. Shunt and compound dynamos. Cross magnetization, sparking. Demagnetization. Cross reluctance. Cross compounding. Concentration of field. Self-compensating armatures. Eddy currents. Forms of field magnets. Magnetic leakage. Exciting ampere turns. Space factor. Armature windings. Commutator

and brushes. Magnet yokes. Field poles. Field windings. Armature core bodies. Commutator construction. Characteristic curves. Efficiency curves. D. C. generators. Methods of driving representative generators.

Direct Current Motors

Fundamental principles. Motors and generators. Counter E. M. F., motor equation. Distortion of field. Efficiency. Losses. Motor laws. Speed and torque. Windings. Series, shunt and compound motors on constant potential circuits. Relations of torque, speed, field strength, armature conductors, lead, etc. Starting, stopping, reversing, series parallel control. Railway motors.

Distribution of Power

Power stations. Location. Choice of generating and transmission systems. Steam engines, reciprocating and turbine. Water wheels. Generators. Storage batteries. Auxiliary apparatus. Switchboards. Switchboard Equipment. Conductors. Wire. Distribution systems. Feeders and mains. Multiple wire systems. Pressure regulation. Overhead and under-ground systems. National Code rules. Statutory and Municipal regulations.

Sub-course on Management of Dynamos in connection with the laboratory work.

Electric Lighting

Historical. Incandescent lamps. Filaments. Voltage. Candle power. Arc lamps. High efficiency lamps. Illumination. Optical principles involved. Shades and reflectors. Photometrical determinations. House lighting. Halls, shops, etc. Street lighting.

Elements of Alternating Currents

Definitions. Armature cores and windings. Cycle. Frequency. Period. Advantages and disadvantages of alternating currents. Characteristic features of alternating currents. Comparison of power.

Ohms and Joules laws as applied to D. C. and A. C. work. Kirchoff's laws. Graphic representation of alternating waves. Form factor. Instantaneous and average power delivered. Synchronism. Phase difference. Inductance. Capacity. Reactance. Impedance. Resonance.

Third Year Course

We do not attempt to give similar outline syllabi for the third year lecture courses because they are so closely interrelated that no sharp line of demarcation exists among them, but in general it may be said that the subjects are covered in full detail in a manner similar to the second year courses as described above.

Among the subjects treated in addition to those listed under the Alternating Course of the second year (which are here repeated with a very much fuller treatment) are the following:

Resonance. The Condenser as a compensator for lag. Measuring instruments. The theory of alternators. Armature reactions. Armature inductance. Regulation. Single and poly-phase systems. Y and Delta connections. Balanced and unbalanced systems. Turbo-generators. Synchronous motors.

Stepping up and down transformers. Transformer regulation. Connections. Auto transformers. Losses and efficiencies. Rating of transformers. Types of transformers.

Synchronous transformers. Induction motors. Switchboard and station appliances. Induction regulators. Synchronizers, etc.

The treatment is by mathematical analyses and graphic diagrams and is planned in such a way as to overcome so far as possible the disadvantage of the lack on the part of the students of a knowledge of calculus and the higher mathematics. The difficulties are presented as clearly as possible and special effort made to illustrate every principle by diagrams, curves and practical examples.

LABORATORY

The laboratory is well equipped with apparatus and possesses a satisfactory set of instruments for teaching the principles of measure-

ments including Slide-wire and Carey-Foster Bridges, Laboratory Bridge, Portable testing set Potentiometer, apparatus for testing insulation, test meters, large and varied equipment of D. C. Weston instruments ranging from 1 to 100 Amperes, and 3 to 750 Volts, etc.

It possesses also six A. C. Ammeters with current transformers, together with Voltmeters with potential transformers, as well as three single phase integrating wattmeters, and this season is purchasing a number of General Electric Iron-clad Wattmeters and a pair of high torque Thomson Induction Test Meters.

There are among machines:

A pair of specially made, matched machines, arranged to run either as single-phase, two-phase or three-phase generators or motors, as well as synchronous transformers, double current generators or, on the D. C. side as shunt, series or compound generators or motors, and also as three wire generators on the Dobrovolsky plan.

Two specially matched, $18\frac{1}{2}$ horse, series motors fitted to a K-10 G. E. series-parallel controller, with brakes, etc., for efficiency and other tests.

A 60-Horse power 60 cycle single phase 500 volt alternator, a smaller ($7\frac{1}{2}$ -Horse power) special G. E. 60 cycle 250 volt alternator, revolving field, tapped for either 1, 2, 3, 6 or 12 phase currents and supplied with special motors changing it into a synchronous, or induction motor of three types as well as into a frequency changer, a Thomson-Houston Inclined Coil, compound generator, a 25-Horse power Westinghouse Compound generator, which can also be operated as a motor, and fifteen other direct and alternating motors of different types and sizes, these being used mostly for individual work.

The equipment in the line of auxiliary apparatus, motor starters, circuit breakers, meters, etc., is also very complete and the remaining lacunae are being rapidly filled up.

LABORATORY COURSES

Electrical Measurements

Experiments on — Resistance by substitution. Resistance by Ohms law. Resistance by direct deflection. Wheatstone Bridge.

Measurement of Insulation resistance. Slide wire bridge. Variation of resistance with temperature. Specific resistance. Measurement of current by Electrolysis. Calibration of ammeter. Calibration of voltmeter by potentiometer. Power measurement by calorimeter. Comparison of electrostatic capacities. Shunt method of measuring current. Magnetization of iron.

Auxiliary Apparatus

Study of circuit breakers. Test and action of fuses. Study of low tension ground detectors. Test of a lifting magnet. Test of a tractive magnet. Calibration of integrating Wattmeter. Test of meter torque. Study of constant-potential arc lamps. Study of incandescent lamps. Test of Wright demand meter. Study of non-protected motor starter. Of a No-voltage release starter. Of an Over-load release starter. Of a Distant-control starter. Of a fully protected motor starter and speed controller. Study of series parallel control.

Construction and Operation of D. C. Dynamos

Study of machine connections. Adjustment of brushes. Effect of reversed rotation, etc. Reversal of motor. Shop testing. Measurement of cold resistance. Mechanical inspection. Cold regulation. Sparking test. Temperature rise. Locating faults. Operating Shunt generators in parallel. Operating compound generators in parallel. Three wire distribution. Same with balancing set. Three wire generator. Study of Booster action.

Elements of Dynamo Testing

Testing of primary and secondary batteries. Measurement of armature circuit resistance. Relation between speed and voltage in an unloaded separately excited generator. Characteristic curves of a Separate, — Shunt, — Series, — Compound Generator. Static torque of Series and Shunt motors on Constant potential circuit. Relation between speed and voltage at the terminals of shunt motor with constant field. Change of speed of same with field excitation,

armature volts constant. Speed variation of same with variable terminal voltage. Load characteristics of a Shunt motor. Same of a Series motor on Constant potential. Of a Compound motor on Constant potential. The Stray power method of testing. Use of Calibrated motor as a Transmission dynamometer. Electrical supply of losses at Constant potential. Testing of railway motors.

Third Year Laboratory Course

This includes experiments on calibrating induction type Integrating Wattmeters. Voltage and Power relations in different combinations of impedances. Power measurements in poly-phase circuits. Electrical relations in Y and Delta connected systems with Inductive and non-inductive loads. The Scott System of Polyphase Transformation. Study of revolving field.

Ratio of voltages and currents in transformers. Regulation of transformers. Efficiency of transformers. Characteristics of transformers.

Characteristic of an alternator. Exercises in synchronizing alternators. Synchronous motor brake test. V curves of synchronous motor. Efficiency of alternator. Regulation of alternators.

Starting of Rotary Converters. Voltage ratios in rotary. Operating single and polyphase rotaries from A. C. and D. C. sides. Compounding of rotary.

Starting and speed control of Induction Motors. Brake test on Induction Motor. Study of Single Phase Induction Motor. Characteristics of Induction Motor, etc.

NOTE. This work is constantly being developed as the laboratory gains the necessary equipment.

In addition to the above regular courses of the School it is intended that, if sufficient men apply for the same to cover the cost, courses will be given on the subject of Wireless Telegraphy. Induction coils and firing systems for gasoline engines, etc.

Also should a sufficient number of men apply to warrant the formation of a class it is intended to arrange for a lecture and laboratory course in Telephony. This, however, would hardly be warranted for

a lesser number than fifteen at the least and twenty would be better as the expense of instruction and laboratory equipment would be large.

Students in the regular second-year course would not find it possible to take this in addition to their regular work but might substitute it for a part of the same, after considering the matter with the Dean.

METHOD OF WORK

The object of all the laboratory work of the Electrical School is to have the student expand the knowledge he has received from the lectures and reading by learning through his finger tips; to have him absolutely handle the object under discussion; to adjust, measure, and test electrical machinery; to become familiar with dynamos, motors, electric wires, and in fact to get an intelligent conception of the entire problem from a practical standpoint. In addition to the foregoing, however, we aim to supply sufficient theory so that the student may know why certain things are done, enabling him thereby to become a skilful operator and one capable of growth and development.

RESULTS

Good work in this school depends, of course, first of all, upon the intelligence and application of the student. When a man is in earnest and attends regularly, he can acquire an intelligent conception and a working knowledge which has a direct and absolute commercial value. He will be head and shoulders above the inexperienced man who endeavors to enter these fields. He will be alert and active mentally, and sufficiently well trained so that he may, with the aid of good textbooks, follow along this line into the higher branches of the art.

THE COOPERATIVE ENGINEERING SCHOOL

HERCULES W. GEROMANOS, S.E., Dean

The aim of this School is to give the student a thorough technical training along Engineering lines, and at the same time to give him the practical experience in his profession which will prove invaluable in his life work. To this end, the students work in pairs, and alternate between the school and their practical employment on alternate weeks. Thus one student will always be at the school, and one at work, but they will occupy either place continuously only for one week each, at the end of that time being relieved by his mate. Thus a man taking Civil Engineering gets the theory of the work at school, and then can go out and apply that theory in the work in Civil Engineering at which he is employed during his weeks of practical work.

The earnings from the outside employment are sufficient to defray the expenses of tuition and supplies, besides giving from fifty to seventy-five dollars a year more for incidental expenses, as car fare, etc., etc.

The practical employment is secured through the school, with which certain firms have agreed to cooperate and give employment to our students.

This plan has been in operation for two years and has proved very desirable from both the employers' and the students' standpoints, since it fits men for their employers' needs and also gives them a training that can lead only to rapid advancement in their profession.

Four year courses are given in Civil, Mechanical, Electrical and Chemical Engineering which are open to high school graduates or the equivalent. Admission after 1911 will be by examination in the following subjects:—Elementary Algebra, Elementary Geometry, Physics, Mechanical Drawing and English.

Experience has proved that in case a student is unable to carry the engineering studies, because of insufficient preparation, that he can be put in our Preparatory School and there continue his alternate weeks of work and study, but take a special preparatory course to fit for the Engineering courses.

Full details of the plan may be had from our "Bulletin of the Co-operative Engineering School."

AUTOMOBILE SCHOOL

WINTHROP C. HOSFORD, Dean

Ninth Year

The Oldest, Largest and Best Known School of the Kind in America.

Special Features

New model building, large equipment, able faculty, private rooms for ladies.

New Building

The Vocational Building, a part of the new plant of the Association, will contain the Automobile School. It will provide, among other features, the most complete and best arranged Automobile School equipment in America. Lecture rooms, private instruction rooms, machine shop, repair shop, and model storage plant. Ready June 1.

Courses

Day and evening courses are repeated at frequent intervals throughout the year. The school offers every facility for acquiring a thorough knowledge of the care, management, repair, reconstruction, driving and up-keep of all types of gasoline vehicles.

Results

Over seven hundred students, including owners, take these courses every year, and are uniformly successful in their work. Many leave us to accept positions as demonstrators, salesmen, chauffeurs, repair men, and in charge of public and private garages.

EVENING LAW SCHOOL

FRANK PALMER SPEARE, Dean

14TH YEAR

The school was established in 1898, incorporated in 1904. It offers an unequalled opportunity to prepare fully to pass the Massachusetts bar examinations and practice in the courts.

The school enjoys a most enviable reputation by reason of its high standards, able faculty, intelligent student body, careful supervision, and remarkably successful graduates.

Year by year our young men have gone from us into practice and business lines, achieving success and distinction. For those who are unable to attend the day law schools this school will be found the most satisfactory substitute.

The course is four years in length, leading to the degree of LL.B.; 366 students enrolled in 1910-1911. A catalogue may be obtained on request. Apply personally, by letter or telephone to the Dean.

MEMBERS OF THE CORPORATION

SAMUEL CROCKER BENNETT, <i>Pres.</i>	EZRA RITLEY THAYER, <i>Vice-Pres.</i>
HON. JAMES ROBERT DUNBAR	DANIEL CHAUNCEY BREWER
FRANCIS BACON SEARS	ARTHUR STODDARD JOHNSON
GEORGE WHITTEMORE MEHAFFEY, <i>Secretary</i>	

SCHOOL of COMMERCE and FINANCE

FRANK PALMER SPEARE, Dean

Established in 1907

Incorporated in 1911

GRANTS THE DEGREES OF B.C.S. AND M.C.S.

A professional school offering an unequalled opportunity for business men to obtain the most advanced methods in Commerce and Finance, Insurance, Real Estate, Publicity, Accounting, Business Organization and Management, Industrial History, Business Economics, etc.

Those desirous of qualifying for positions of trust and responsibility will find these courses of great value.

Special Students

Special students will be admitted to any course or courses which will be of assistance to them in their business.

OFFICERS

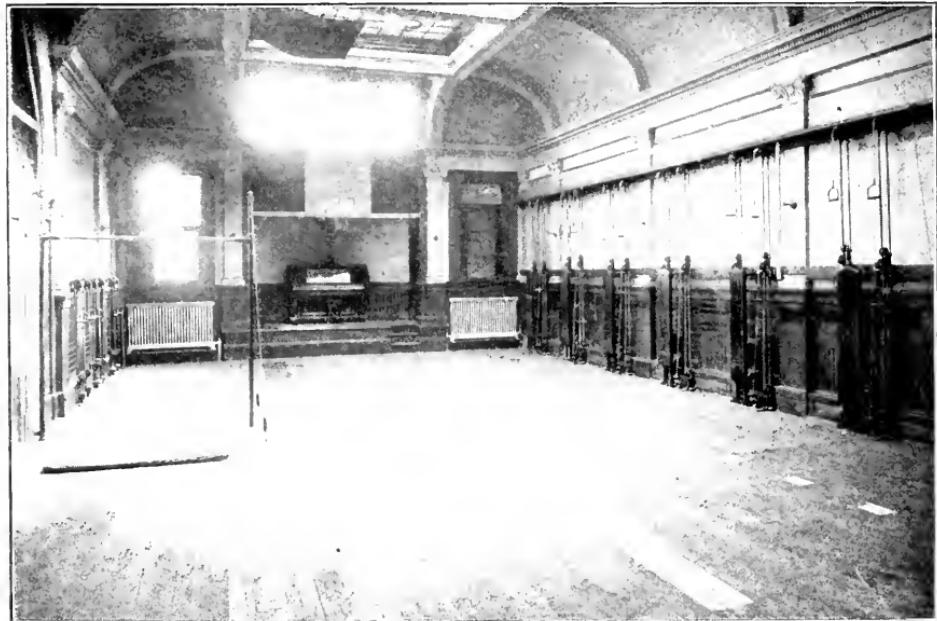
JACOB P. BATES, President
FRANK W. CARTER, Vice-President
JOHN E. ROUSMANIERE, Secretary
FRANCIS B. SEARS, Treasurer
FRANK PALMER SPEARE, Dean

EXECUTIVE COMMITTEE

EDWIN F. GAY
WILLIAM DILLON
HERBERT F. FRENCH
MORGAN L. COOLEY
F. R. C. STEEL
FRANCIS B. SEARS
FRANK W. CARTER



BOYS' SOCIAL ROOM



GYMNASIUM

PHYSICAL DEPARTMENT

GYMNASIUM AND ATHLETICS

ALBERT E. GARLAND, M.D., B.P.E., Director

The Physical Department

The Physical Department of the Boston Young Men's Christian Association is one of the best conducted and organized institutions for physical education in the country. The work is under careful medical supervision of a man of broad education and long experience in this branch of education and the directors of the department are all men of experience and thorough training. Every feature of the work will be found in accord with the latest recommendations of the leading educators.

Our Equipment

The Gymnasium is well lighted and ventilated and the baths consist of ample shower accommodations; the lockers are of steel, fitted with combination locks; the athletic work is conducted on an athletic field under competent instruction and thorough supervision.

Requirements

Every student is required to take the course of physical training and pass a satisfactory examination. Every boy needs systematic exercise for recreation and development, because the best mental growth in the youth is to a large extent attendant upon his physical health and vigor.

Classes

Classes are conducted on Monday, Tuesday, Wednesday and Thursday mornings from 11.15 to 12. The school is divided into two sections, each having a required time of two periods each week. The classes are again divided into squads or grades according to the student's ability. The course and examinations are briefly as follows, and the marking is on the percentage scale of 100.

COURSES

First Year

- Figure Marching
- Calisthenics
 - Freehand, wooden bells, fancy steps
- Apparatus
 - Mats, buck, horse, ladder
- Athletics (Indoor)
 - Broad jump, high jump, 25-yd. dash, 5 potato race
- Athletics (Outdoor)
 - 50-yd. dash, running broad jump

Second Year

- Figure Marching
- Calisthenics
 - Free hand, bar bells, fancy steps
- Apparatus
 - Horse, vaulting bar, parallel bars
- Athletics (Indoor)
 - 3 broad jumps, 30-yd. dash, standing high jump, 8 potato race
- Athletics (Outdoor)
 - 75-yd. dash, 220-yd. run, swimming 15 yds.

Third Year

- Military Marching
- Calisthenics
 - Free hand, iron wand, advance fancy steps
- Apparatus
 - Parallel bars, low horizontal bar, horse
- Athletics (Indoor)
 - Running high jump, hop, step and jump, 35-yd. dash, 8 potato race
- Athletics (Outdoor)
 - 100-yd. dash, 330-yd. run, putting 8-lb. shot, swimming 25 yds.

Fourth Year

- Advance military and figure marching
- Calisthenics
 - Free hand, Indian clubs, advance fancy steps, iron dumb bells
- Apparatus
 - Horizontal bar, long horse, tumbling
- Athletics (Indoor)
 - Running broad jump, 35-yd. dash, $\frac{1}{4}$ -mile run
- Athletics (Outdoor)
 - 100-yd. dash, 440-yd. run, 1-mile run, throwing the discus, pole vault, swimming 50 yds.

Medals and Diplomas

Diplomas will be given to every boy who passes a satisfactory examination on the above course of work and medals will be awarded the boys making the best all-round records in the different classes and divisions.

Athletics

The athletics will be placed on a broad and general platform and will be conducted for the benefit of every boy in the school and the games and athletic sports will be carried on for the mass of students and not for the selected few. This plan is being advocated by all the large colleges and preparatory schools. Athletic, baseball and football teams will be organized among the students and when deemed advisable, outside games with other schools will be permitted. Every student will be given an opportunity to engage in these recreations.

Indoor Games

The same general plan of work will be conducted in the indoor games as in the athletics. Basket ball, volley ball and relay teams will be conducted for all the members of the school.

Life Saving Course

Among thoughtful people there is a growing tendency towards peace rather than war, towards arbitration rather than conquest, towards patriotism manifested by love and knowledge of our country, rather than a desire to destroy the enemy. Consequently instead of having military drills in our work, which implies the destruction of life, we shall have life-saving drills and the drills will include courses in first aid to the injured, marching, life-saving from water and fire, and swimming.

First Year

Marching, First aid to the injured.

Second Year

Marching, first aid to the injured, life saving from water, swimming, rescuing and resuscitation, flag signalling.

Third Year

Marching, first aid to the injured (with examination and diploma), life saving from fire including entering a building, ladder drill, wall scaling, passing buckets, applying water and using extinguishers.

Alertness, obedience, order and self-control may be learned in these drills and exercises.

ASSOCIATION BIBLE INSTITUTE DAY SCHOOL DEPARTMENT

EDWIN W. PEIRCE

Director of Religious Work

DEAN W. PETERSON

Asst. Director of Religious Work

DON S. GATES, A.B.

City Secretary for Boys

In planning the courses of study for an up-to-date school for boys and young men, we feel the curriculum would not be complete nor our duty as instructors of the students fulfilled, unless it contained a course along moral and religious lines.

We recognize among boys and young men of today a great need for clean living, for deep conviction regarding right and wrong, and for strong, steady faith in God that will fortify them in their daily fight with temptation in its many forms.

We, therefore, direct the attention of every Day School student to a study of the English Bible, — the original source of the great laws of ethics, of morality, and Christian civilization; believing that in studying the lives of great men of other days and of God's dealings with them, and of the life and teachings of Jesus Christ, they will find the principles and ideals with which to build in themselves stable Christian character.

Very fortunately such study is made possible through the Association Bible Institute, where a *special course* has been arranged for Day School students (High School and College Preparatory Division). This is a three years' course, entitled "The History and Teachings of the Bible," prepared and given by Joseph E. Nyhan, Ph.B., of Brockton, Massachusetts, a man with a thorough educational and spiritual training for such an important task.

(For Bible Study for the Grammar School Division, see paragraph entitled "Group Classes.")

The course is given in the form of lectures on Friday mornings 9.05 to 9.40, and is one of the required courses of the school. Written reports are required of the students each week, and a passing grade is necessary for graduation, as in all other studies. The text book is the American Revised Version.

The division of work over the three years, is as follows: 1st year,

study of the historical and poetical books; 2d, study of the prophetical section; 3d year, study of the New Testament. Its aim is for each student to become acquainted with the Literature, History, Teaching Function and Place of the Bible.

The methods used are the half-hour lecture combined with individual study by the student, who, in his reading, is requested to note references to nature, to art, to man as sinful and as redeemed, to the life of the people, — political, social and industrial, to a spiritual world, and a Supreme Being. Character studies are called for frequently. Regular and independent work is required.

The outline for this second year is as follows:

- I. The Bible as a whole
- II. The Old Testament
 - (a) The Historical Section
 - (b) The Poetical Section
- III. The Prophets
 - (a) The Major Prophets
 - (b) The Minor Prophets

The opening of the course for this second year is designed to review work done the first year, especially for the benefit of new students. The main work for this year will consist of the studies of the Prophets and their writings, and relation to their own day and to our day. The historical method prevails in this study.

Group Classes

Each student in the Grammar School Division of the Day School is expected to enroll in a group class for Bible Study, either in the Association Building, or in a Neighborhood Club. The courses used in these classes are carefully adapted to the age of the student, and are in charge of competent young men as leaders. For definite information, see the Boys' Work Secretary, or the Asst. Director of Religious Work.

Chapel Talks and Addresses

Following the plan of former years, men of prominence and ability, who have a real message for young men, will speak weekly, on Wednesday mornings, following the Chapel exercises.

Chapel Exercises

Each morning at 9 o'clock, in the Assembly Room, all Day School students gather for Chapel exercises, which include songs, Scripture reading and prayer.

BOYS' DEPARTMENT

DON S. GATES, A.B.
City Secretary for Boys

JAMES G. BARNES
Asst. Boys' Secretary

ALTON C. ROBERTS
Asst. Boys' Secretary

The Boys' Department of the Association is not a separate department but rather a section co-operating with all other departments of the Association with respect to activities of the members of the Association who are under eighteen years of age. The Boys' Secretaries co-operate with the Secretaries of all the other departments so far as their work among boys is concerned, and strive to plan and adapt the work to the special groups of our membership. This enables us to offer to the members of our Day School many exceptional advantages. Prominent speakers are secured to address the school throughout the year, among whom are successful business men, prominent pastors and leading statesmen.

Volunteer Bible Classes, moral and religious talks, current topic and other clubs are also provided for the boys.

The greatest difficulty however, in nearly every school is how and what to provide for the fellows during recess time and after school, for it is during leisure hours when a boy has nothing definite to take up his mind that he is most often led to do those things which are not wholesome.

We have well furnished reading and game rooms in which the boys may spend their time during recess, after school and on Saturdays. Many games are supplied which are not only games of interest but require skill as well. A Library of nearly 500 of the latest books is at the command of the fellows, and fifteen or more of the best magazines are on our tables.

Observation trips and hikes are planned each week either on Friday afternoons or Saturdays when the boys are able to visit under competent leadership many of our public buildings, historic sites, large business houses, etc. Walking, hikes and camping trips are also planned during the summer months.

The officers of the Boys' Department naturally come to know the boys personally and meet them entirely from a different angle than the teachers of the school and are glad to advise them concerning their life work or any other matters which naturally come to any thinking boy or young man.

Social activities are provided for the boys and many strong qualities of leadership are developed in the boys under the direction of the Secretaries. Not only are the boys given responsibility in carrying out the social plans among themselves but many of them are directed to do social service work for those less fortunate than themselves.

Through our Employment Office, we are often able to secure work for boys who desire it during spare hours, on Saturdays and in the summer.

Many of our boys attend Camp during July and August. For those who prefer fresh water the State Y.M.C.A. Camp at Becket, Mass. in the Berkshire Hills is a source of delight. For those who desire the seashore, Camp Durrell at Friendship, Me., is equally attractive. These camps are for fellows twelve to eighteen years of age. Camp Buena Vista, Lake Winnipesaukee, New Hampshire is the popular resort for many young men of our Association. All three camps are open during July and August of each year.

STUDENTS IN THE ASSOCIATION DAY SCHOOL

1910-1911

PREPARATORY SCHOOL

Andelman, Maurice	Cambridge
Bishop, Geo. L., Jr.	Ashmont
Bishop, Harry D.	Ashmont
Broderick, Philip S.	Waltham
Brown, David	Accord
Calabro, John	Boston
Carter, Robert P.	Woburn
Chatman, Harry	Boston
Cohen, William	Boston
Coleman, Roscoe E.	Briar Cliff, New York
Curtis, Paul O.	Dorchester
Davis, Daniel L.	Belmont
Dexter, Arthur L.	West Newton
Dresser, Geo. H.	South Boston
Feldman, Allen	Boston
Ford, Thomas H.	Medford
Freeman, Geo. W.	Boston
Furber, Alan W.	Roxbury
Furlong, John L.	Boston
Gifford, Edward R.	Dorchester
Goon, Thomas W.	Boston
Gumb, Irving T.	Lowell
Hackett, Thomas L.	Watertown
Innella, Patrick	Boston
Jackson, Wm. B.	Allston
Jones, Frank W.	Winthrop
Jones, Laurence F.	Roxbury
Kirlin, Win.	Arlington
Krekorian, Mesrop	Boston
Lane, Arthur	Dorchester
La Voie, Hector	Boston
Malkasian, Nishan R.	Brighton
Margeson, Reginald D.	Westwood
Martin, Philip L.	Jamaica Plain
May, John Alden	Brookline
Mugglebee, Samuel	East Boston
Newcombe, Henry S.	Marlboro
Northrop, Donald	Brookline
Picon, Ernest	Boston
Price, Charles W.	Stoneham
Prince, George M.	Somerville
Rippen, Bernard A.	Boston
Rollins, Lester M.	Wollaston
Spear, Fred B.	Eastport, Maine
Steele, Alfred	Gloucester
Stowell, Chauning	Jamaica Plain
Strong, Roy G.	Wakefield
Stroobants, Prosper	Boston

Sumner, Philip	Jamaica Plain
Taggart, Wayne P.	Boston
Todd, Joseph	South Boston
Van Koert, Leo	Mansfield
Watson, Frederick A.	New Bedford
White, Thomas C.	Malden
Woodley, Raymond	Jamaica Plain

GRAMMAR SCHOOL

Banfill, Charles Y.	Longwood
Berry, Emmons	Winthrop
Bossom, Charles F.	Revere
Braislin, Dana B.	Dorchester
Bulgaris, Christy	South Boston
Burns, Percy	Dorchester
Clark, Howard R.	Boston
Clifford, Frank	West Roxbury
Cobb, Earland S.	Melrose
Cooney, Charles D.	Boston
Farrell, James T.	Malden
Hawes, Wales	Dorchester
Hughes, James Z.	Cambridge
Jewett, Henry H.	Reading
Kidder, Raymond F.	Dorchester
Larner, Edw.	Cambridge
Lewis, Darrell A.	Roxbury
Macomber, Albert H., Jr.	Dorchester
Manny, Charles	Boston
Moore, Charles D.	Arlington
Nickerson, George G.	Boston
Nickerson, Paul	Boston
Nickerson, Solon	Boston
Pearson, R. Clifton	Wakefield
Perkins, Fred W.	Waltham
Richter, Emil B.	Medford
Romano, Phlorentine	Charlestown
Rossier, Pierre	Boston
Ryder, Harry L.	Malden
Snell, Francis A.	Brookline
Steiner, Waldo H.	East Dedham
Swan, Willard	Cliftondale
Thompson, David B.	Mattapan
Trowbridge, J. Chace, Jr.	Stoughton
Wason, Alfred B.	Brookline
Wason, Eldridge	Brookline
Wong, Almer C. J.	Boston

BUSINESS SCHOOL

Anderson, Fred A.	Boston
Crowley, Milton W.	Jamaica Plain
Cudworth, Robert P.	Melrose Highlands
Cummings, Hollis R.	Dorchester

Cummings, Lester	Dorchester
Daley, John J.	Dorchester
Dolan, Joseph A.	Dorchester
Finn, Joseph P.	Boston
Gale, Waldo S.	Boston
Gregory, Phillips C.	Roxbury
Griffin, Edmund	Watertown
Hinds, Stowell	Boston
Kelley, Arthur J.	Dorchester
Keniston, Frank	Arlington
Mitchell, Oscar S.	Hull
Morse, Eugene E.	Roxbury
Sargent, Everett E.	Dorchester
Seligman, Paul	Brookline
Sewall, Karl D.	Brookline
Smith, Charles W.	Winthrop Beach

CO-OPERATIVE BUSINESS SCHOOL

Adair, John	Revere
Allison, Albert H.	Dorchester
Brooks, Leo L.	Neponset
Button, Gerald E.	Neponset
Durning, Francis	Jamaica Plain
Hussey, Frank S.	Winthrop
Lundquist, Arthur	Dorchester
Mahoney, Charles	Roxbury
Pierce, Henderson G.	Allston
Scalley, John H.	Woburn
Sinnett, John J.	Roxbury
Silverman, Samuel M.	Boston
Solynski, Stanislaus	Hyde Park
Stroup, John F.	Roxbury
Walton, William R.	Boston

POLYTECHNIC SCHOOL

Atwood, Joseph F.	Woburn
Bagdilian, Nishan	Charlestown
Baker, Alfred W.	Allston
Bicknell, A. C.	Weymouth
Blood, Robert E.	Cambridge
Brown, Gordon W.	Woonsockett, R. I.
Cooper, Alton R.	Medway
Denny, Willard E.	Dorchester
Dudgeon, Wm. E.	Allston
Easton, Kenneth H.	Rockland
Emeno, Frederic	Boston
Greenhood, Maurice	Boston
Hall, Fred L.	Boston
Holland, Maurice J.	Brookline
Jackson, Theodore C.	Melrose
Light, J. Stanley	Dorchester

Mattimore, Leonard J.	Sharon
Moller, Louis B.	Cambridge
Moses, Eliot	Waltham
Niles, Thornton	Weymouth
Pease, Carlton W.	Needham
Pitcher, Ralph C.	Somerville
Ringer, Robert R.	Boston
Sleeper, Eaton F.	Roxbury
Smith, Charles A.	Allston
Taylor, Harold W.	Waltham
Timilty, James E.	Roxbury
Tyler, Samuel F.	Newton
Varley, William J.	Concord
Waite, Charles F.	Wilmington
Wood, Frederick W.	Dorchester
Woodlock, Charles W.	Boston
Zirkel, W. H. Jr.,	Cambridge

CO-OPERATIVE ENGINEERING SCHOOL

Bean, M. Paul	Malden
Berry, Fred A.	Somerville
Briggs, Howard S.	Everett
Buck, Robert E.	North Wilaington
Driscoll, D. Vincent	Malden
Faulkner, John J.	Salem
Foster, Frederick S.	Dorchester
French, Prescott E.	Everett
Girard, Leon F.	North Cambridge
Gurney, Harold L.	Natick
Hannay, Arthur E.	Roslindale
Harris, Horace C.	North Leominster
Haynes, Erle S.	Dorchester
Hill, Ralph J.	Littleton
Jones, Adelbert L.	Melrose
Jones, Frank H.	Somerville
Keene, Stephen Jr.,	Malden
Lambert, Wm. J.	Everett
Leighton, John R.	Everett
Lesdernier, Paul de	Needham
Moody, Charles B.	Boston
Moynihan, Walter B.	Holliston
Norman, Ralph N.	Natick
Norton, John G.	Dorchester
Pinksohn, Clarence N.	Allston
Ranger, Leon B.	Cambridge
Sawyer, Gilbert	Malden
Schroeder, Carl	Wollaston
Shattuck, Farriss	Natick
Slane, Francis X.	Dorchester
Slotnick, Hyman	Everett
Stackpole, Burton	South Weymough
Stark, Harry W.	South Boston
Stromvall, Ernest M.	West Somerville

Varina, Roy E.....	Swampscott
Venn, Frank H.....	Malden
Wheeler, Lawrence W.....	Everett
Woodsum, Samuel.....	Holliston
Wright, Ashley	Natick

SUMMARY

Preparatory.....	50
Grammar	37
Business	20
Co-operative Business	15
Polytechnic.....	33
Co-operative Engineering	39

Total

194

RATES OF TUITION

Grammar School

The rate of tuition in the Grammar School is \$80 per year. The first payment, a registration fee of \$10, must be made before a student will be admitted to the class; the second, \$40 is payable on or before the second Monday after the student enters; and the final payment, \$30, on or before February 1. This includes membership in the Y. M. C. A. for one year, use of books, supplies and gymnasium.

Preparatory School

The rate of tuition in the Preparatory School is \$125 per year. The first payment, a registration fee of \$10, must be made before a student will be admitted to any of the classes; the second, \$65, is payable on or before the second Monday after the student enters; and the final payment, \$50, on or before February 1. This includes membership in the Y. M. C. A., for one year, use of books, supplies and gymnasium. A laboratory fee of \$5 is required of those taking courses in chemistry.

Rates for Single Courses

One hour per week	\$10 and \$5 Membership
Two " " "	15 and " "
Three" " "	20 and " "
Four " " "	25 and " "
Five " " "	30 and " "
Laboratory Courses	40 and " "
Mechanical Drawing is counted as a three hour course.	

School of Business

The rate of tuition in the School of Business is \$125 per year. The first payment, a registration fee of \$10, must be made before a student will be admitted to any of the classes; the second \$65, is payable on or before the second Monday after the student enters; and the final payment, \$50, on or before February 1. This includes membership in the Y. M C. A. for one year, use of books, supplies and gymnasium.

School of Co-operative Business

The tuition in the School of Co-operative Business is \$75 per year; \$10 payable at time of registration, \$8 on October 1 and \$8 on the first of each month until paid. This rate includes membership in the Y. M. C. A., use of books, supplies and gymnasium.

Polytechnic School

All of the students in the Polytechnic School are special, many attending both day and evening courses. Rates for the day courses are on the same basis as single courses in the Preparatory School. For rates of evening courses see catalog of the Evening Polytechnic School.

School of Co-Operative Engineering

The cost of tuition in the School of Co-operative Engineering is \$100 per year; \$10 payable at the time of registration, \$10 before receiving supplies, \$30 Dec. 1, \$30, Feb. 1, and \$20 April 1. This covers all the expenses of the student, including membership in the Y.M.C.A. for one year supplies, laboratory fees, breakage and the use of a set of drafting instruments.

Electrical School

The rate for the Electrical School is \$125. The first payment a registration fee of \$10, must be made before the student will be admitted to the class; the second, \$65, is payable, on or before the second Monday after the student enters; and the final payment, \$50, on or before February 1. This rate includes membership in the Y. M. C. A., use of books, supplies and gymnasium.

Evening Law School and School of Commerce and Finance

The rate for the year is \$75; \$25 payable upon entering, \$25 December 1 and \$25 February 1. This includes membership in the Y. M. C. A. for one year.

ANNOUNCEMENT
OF THE
Evening Polytechnic School
1911-1912

CALENDAR

1911

September 28, 29, 30.	Registration
October 2.	Opening of First Term.
October 12.	Columbus Day, Holiday.
November 30.	Thanksgiving, Holiday.
December 25.	Christmas Day, Holiday.

1912

January 15.	Opening of Second Term.
February 22.	Washington's Birthday, Holiday.
April 19.	Patriots' Day, Holiday.
April 27.	Close of Second Term.

FOR ELECTRICAL SCHOOL SEE PAGE 29

ASSOCIATION INSTITUTE

BOSTON YOUNG MEN'S CHRISTIAN ASSOCIATION

Organized on the Day, Evening and Summer Schools from the 7th Grade Grammar up to and including work qualifying for a University Plan College Degree.

College Preparatory School

Day and Evening Sessions

A high-grade College Preparatory School consisting of a Grammar School (7th and 8th grades) and a High School fitting for the Colleges, Medical and Dental schools, Massachusetts Institute of Technology, Indianapolis, West Point, Lowell School for Industrial Foremen, Law schools and the classified Civil Service.

IRA A. FLINNER, A. B., Harvard, Dean

School of Business

Day and Evening Sessions

Offers all of the courses of the regular Business School program, and additional cultural courses preparing for business and admission to our School of Commerce and Finance.

ARTHUR H. DELANO, A.B., Boston University, Dean

Co-operative Engineering School

Day Sessions

Four years' courses of college grade in Chemistry, Mechanical and Civil Engineering, etc., in co-operation with business firms. Students earn while learning.

H. W. GEROMANOS, S.B., Massachusetts Institute of Technology, Dean

Co-operative Business School

Day Sessions

Three years' courses of high school grade in commercial training combined with business experience. Earning while learning.

ARTHUR H. DELANO, A.B., Boston University, Dean

School of Commerce and Finance

Evening Sessions

Established 1907; incorporated 1911. Offers a two years' course in preparation for the Certified Public Accountants' examinations. Provides a three years' course in the science of Business administration. Grants degrees of Bachelor of Commercial Science and Master of Commercial Science.

FRANK PALMER SPEARE, Dean

Evening Law School

Evening Sessions Only

Established in 1898; incorporated in 1904. Provides a four years' course in preparation for the Bar and grants the Degree of Bachelor of Laws.

FRANK PALMER SPEARE, Dean

Polytechnic School

Day and Evening Sessions

H. W. GEROMANOS, S.B., Massachusetts Institute of Technology, Dean

A School of many departments, training students in Engineering and Applied Science. Much of this work is of technical school grade.

School of Electricity

Day and Evening Sessions

WILLIAM LINCOLN SMITH, S.B., Massachusetts Institute of Technology, Dean

Offers one and three years' courses in Applied Electricity and Engineering. Well-equipped shops and laboratories.

Automobile School

Day and Evening Sessions

Deals with the construction, care and operation of all types of gasoline vehicles; a large staff of teachers; ample equipment and garage. NEW BUILDING.

WINTHROP C. HOSFORD, Dean

For further information concerning any of the above schools or departments, address the Educational Director,

FRANK PALMER SPEARE, 10 Ashburton Place, Boston, Mass.

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WILLIAM E. MURDOCK

JOHN SHEPARD

D. CHAUNCEY BREWER

ALBERT H. CURTIS

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FRANK P. SPEARE, Educational Director

GALEN D. LIGHT, A.B., Superintendent of Evening Schools and
Bursar

OLIVER T. NOON, S.B., Secretary

HERCULES W. GEROMANOS, S.B., Dean

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PROF. H. E. CLIFFORD, Harvard University

PROF. F. H. BAILEY, Massachusetts Institute of Technology

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PROF. GAETANO LANZA, C.E., Head of the Department of Mechanical Engineering,
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HENRY MANLEY, Assistant Engineer, Engineering Department of City of Boston

Railroad Engineering

FRANK B. ROWELL, Assistant Chief Engineer, B. & M. R. R.

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- WALTER A. BALDWIN, A.B., Physics
- ROYALL D. BRADBURY, S.B., Concrete Design and Construction
- JAMES BROUGH, Freehand Drawing and Industrial Design
- GEORGE B. BUXTON, Steam Engineering
- A. L. CHESLEY, Chemistry
- HARRY P. CROMWELL, Mechanical Drawing
- CLARENCE E. EBERT, Mathematics
- HERCULES W. GEROMANOS, S.B., Physics and Chemistry
- HAROLD S. GRAVES, Mechanical Drawing, Machine Drawing
- FREDERICK C. HOSMER, A.B., English
- JOHN W. HOWARD, S.B., Surveying
- DANIEL KNOWLTON, S.B., Plan Reading and Estimating
- HUGH J. KNOWLTON, Window Dressing
- CHARLES H. B. MORSE, Illustrating and Cartooning
- J. F. NORTON, Ph.D., Chemistry
- W. W. NORTON, Surveying
- WILLIAM A. O'BRIEN, Illustrating and Cartooning
- THOMAS E. PENARD, S.B., Mathematics
- CHARLES H. RESTALL, S.B., Railroad Engineering
- ELLWOOD B. SPEAR, A.B., Ph.D., Chemistry
- GEORGE A. TRUELSON, Architecture
- ALBERT L. WEST, Architecture

CHARLES B. GRAY, Educational Office Secretary
KATHERINE M. VINTON, Secretary to Educational Director

FOREWORD

Employed men are beginning to realize as never before the great value of their leisure hours and the possibilities they possess as a means of increased efficiency and a corresponding earning capacity. The phenomenal success of technically trained men in all lines of industrial activity and the ease with which graduates of such schools as the Massachusetts Institute of Technology push to the front, securing and holding places of great responsibility, impress employed men of ambition, and there are hundreds who deplore the lack of early opportunities and earnestly wish that the way might have opened for them to secure a thorough technical training. The Association Institute of the Boston Young Men's Christian Association was the first school in Boston to undertake really serious evening work for men, and with the growth of the school and its reputation for thoroughness and efficiency has come an added responsibility and a determination to establish and maintain a school of such dignity of purpose and breadth of opportunity as shall bring to the employed man, having only his evening hours for study, the very best equivalent for a regular technical day school course.

Harvard University and the Massachusetts Institute of Technology, with their magnificent teaching force, ample funds and equipment, train the master minds — the men who are to develop and mould the resources of the world. There is, however, a great need for men in the secondary positions, and it is for the training of such men that the Polytechnic School has been established.

The great success we have met in the past leads us to believe that students who complete satisfactorily any of the courses herein outlined will be well qualified to enter active practice with hope of success.

Our purpose is not to give students a false impression of their qualifications or ability but to provide the very best equivalent for a technical school training so far as we go, presenting the more essential features of every subject under consideration and striving to provide a definite working knowledge which will prove of immediate value. The work is intensely practical, and every subject has a direct bearing upon productive lines.

DEPARTMENTS AND COURSES DEPARTMENT OF ART

INSTRUCTORS: JAMES BROUGH, CHARLES H. B. MORSE and WILLIAM A. O'BRIEN.

The department of art has acquired an enviable reputation by reason of the splendid instruction given and the success achieved by its students. The courses are varied and cover much of the field by reason of the versatility of the instructors. Great care is taken to develop the student along the lines of his natural inclinations, and, so far as is possible, to have the work of the school bear directly upon his daily employment and other courses attended. The work is thorough, complete, and of a high professional order.

Freehand Drawing. MR. BROUGH

Considering the great importance of the study of freehand drawing to all who are engaged or anticipate being engaged in any industrial art, artistic trade or profession, we offer a very complete course in this line, and call attention to the splendid advantages provided.

The work is adapted to the requirements of each individual student, so far as is practical and consistent with a thorough training in freehand drawing. There are two classes in both freehand drawing and industrial design.

Class I. The work of this class is intended to meet the wants of those students who have no previous knowledge of freehand drawing and is recommended to all students who intend to become craftsmen, designers, architects and artists, also others who may wish to take up the study as an accomplishment. The work will consist of drawing from typical models, by which students learn a sense of proportion and the principles of perspective; groups of still life for the study of composition and color; also drawing of historic ornament, details of the human figure from the cast, by which students are taught to observe form and the principles of light and shade.

Class II. The course of study in this class is of a more advanced nature than that of Class I and, in addition to the more complicated forms of ornament, the full-length human figure from the antique is added, rendering in pen and ink and pencil, advanced shading in charcoal, painting groups of still life in monochrome and polychrome, in oil and water colors.

Industrial Design and Interior Decoration. MR. BROUH.

The courses in industrial design and interior decoration are specially helpful to those students who are already or anticipate being engaged in such arts and crafts as wood and stone carving, wrought and bent-iron work, brass and copper work, stained glass, furniture and drapery, interior decoration, book covers, wall paper, fabrics and other allied industrial arts. No limitation is placed upon the student who shows ability to take up the work prescribed for the class he wishes to enter, and students who so desire may spend part of their time in the freehand class and part in the industrial design and interior decoration class, without extra charge. The instructor is a certified art master and one of the leaders of the profession. Students in industrial design are recommended to take architecture.

Class I. The studies in this class include the work of the freehand drawing in Class I, with the addition of special studies given for the purpose of design, such as a systematic study of the various styles of historic ornament, studies of animal and plant form, and the elementary principles of design.

Class II. Students who have an elementary knowledge of drawing and design are considered eligible for this class and are taught the more advanced principles of composition, form, and color in design, also rendering the same in various mediums, including charcoal, pencil, pen and ink, water and oil colors.

Illustrating and Cartooning. MR. MORSE AND MR. O'BRIEN.

This class is under the supervision of Mr. C. H. B. Morse, assisted by Mr. W. A. O'Brien. Mr. Morse's paintings are reproduced as Copley Prints and sold throughout the country in the best art stores. He has had a successful experience as instructor in both public and private art schools. Mr. O'Brien has studied in London, in the Metropolitan School of Art, Dublin, and with Mr. Morse.

The class meets three times a week Tuesday, Thursday and Saturday. Mr. Morse will criticise on Tuesday and Saturday, and Mr. O'Brien will have charge on Thursday. The first term the students will draw from the model to gain knowledge in proportions, anatomy, and the use of the different mediums used in rendering the

figure for reproduction. Weekly compositions for illustrations and cartoons will be submitted and criticised. The model will be used in working out the successful compositions.

The second term the model will pose for shorter sketches and will be drawn while in motion to secure natural and life like attitudes. The compositions and cartoons will be also continued, and the advanced students will receive instruction in facial expressions and character. The individuality of each pupil will be encouraged, and each will be advised as to the best use of his particular ability.

DEPARTMENT OF ARCHITECTURE

INSTRUCTORS: ALBERT E. WEST, Architect with Parker, Thomas & Rice; GEORGE A. TRUELSON, Architect with Shepley, Rutan & Coolidge; and ROYALL D. BRADBURY, S.B., Instructor, Massachusetts Institute of Technology.

The department of architecture has been modelled for the coming year to meet the specific requirements of the evening school, and is the result of the careful deliberations of the instructors and the corroboration of the Advisory Board.

The foundation for the practical work is laid during the first year when the primary principles to make a good draughtsman are taught and the student is specially schooled for the coming years.

In the second year are embodied the actual drawing of building details and plans and the composition of specifications.

The third year, which comprises a practical course in building construction, is designed for both elementary and advanced students, and is especially attractive to draughtsmen who wish to become proficient in the subjects embodied.

The fourth year embraces planning and the elements of design developed into finished drawings and is open to students desiring special instruction.

Architecture I. MR. TRUELSON.

An elementary course, including the fundamental principles underlying all kinds of mechanical and architectural drawing; geometrical problems, orthographic projections and the five orders of architecture.

In connection with Architecture I the students are required to take up a course of reading in architectural history as outlined by the instructor.

Architecture II. MR. TRUELSON.

Practical architecture and details of construction. The work consists of preparing complete plans, elevation, working drawings and specifications.

[*Architecture III.* MR. WEST.]

This course is to cover practical methods of building construction; including wood and steel framing and the principles of reinforced concrete.

Talks with blackboard illustrations will be given on stones and woods used in buildings, strength of materials, limes, cements and mortar, methods of testing cement, waterproofing, shoring and underpinning, strength of masonry, terra cotta floor arches, fireproofing and mill and warehouse construction.

The principles of graphic statics, methods of computing bending moments, and the design of wood and steel beams, girders, and columns, foundations, retaining walls and roof trusses will be clearly explained and demonstrated by practical examples.

SPECIAL NOTE—This course will be omitted during school year of 1911-1912.

Architecture IV. MR. TRUELSON.

Shades and shadows, perspective, original design and finished drawings.

FOUR-YEAR ARCHITECTURAL COURSE

(A suggested Outline)

Any student passing satisfactory examinations in any of the following subjects will be credited with the same.

FIRST YEAR

Architecture I, freehand drawing I, arithmetic.

SECOND YEAR

Architecture II, freehand drawing II.

THIRD YEAR

Architecture III, French, history.

FOURTH YEAR

Architecture IV, applied mechanics, business law, thesis.

ADVANCED STANDING

Applicants for advanced standing should make application as early in the term as possible, enclosing any letter or certificates bearing on their previous work.

SPECIAL STUDENTS

Students desiring special work in this department not outlined above should consult with the Superintendent.

Students desiring the work of any particular course in this department, not candidates for a diploma, are at liberty to enter if qualified to handle the problems presented.

[Plan Reading and Estimating.]

This is a course especially designed for carpenters, builders, contractors, architects and draughtsmen. It is not a course in drawing, but at once enters into the actual reading of plans, taking off quantities, and estimating. A knowledge of drawing is not necessary and only simple arithmetic will be used. The instructor is one of the ablest estimators in the country, and a man capable of handling any phase of the work.

The course will cover thirty evenings' study from architects' plans and specifications, and includes short lectures each evening, covering the general building business and kindred subjects. The course will cover preliminary work in building surveys, shoring and excavation, masonry, cut stone, carpentry and hardware, and may touch upon plastering, structural steel, heating and plumbing, painting and glass and electric work.

SPECIAL NOTE—This course will be omitted 1911-1912.

DEPARTMENT OF CHEMISTRY

DIRECTOR: ELLWOOD B. SPEAR, A.B., Ph.D.

INSTRUCTORS: J. F. NORTON, Ph.D. and A. L. CHESLEY

The wonderful advance in the application of science to the arts during the past few years has caused a great demand for technically

trained men. Nearly every large manufacturing concern now employs chemists regularly, or else has experts whom it can consult at short notice. The scientific and technical schools are each year sending out large classes of young men especially trained to meet this demand. For a young man to acquire this education requires four years at a scientific or technical school, in addition to the four years necessary for preparation at the secondary school, and an outlay of from two to three thousand dollars. These necessary expenditures of time and money are such that many young men who are mentally capable of taking such courses are obliged to give up their ambitions and fill inferior positions.

Formerly the practical knowledge which young men acquired by contact with their work was sufficient, but today the degree of specialization is such that a theoretical knowledge is essential to success in many industries where chemical processes are utilized.

There are many men who, by close application to the practical side, have acquired responsible positions in technical industries but are unfamiliar with the theoretical side of their chosen work.

Such men are unable to advance in their special lines because they cannot read the many valuable books written on special technical subjects which presuppose a general knowledge of the theory of chemistry.

At the present time the requirements of admission to the higher institutions of learning, even for special students, are such that the doors are practically closed to these men, although many of them could take special courses with profit. Again, the only available hours for such men are during the evening. There is a demand, therefore, for a systematic evening course in chemistry, which will be open to men engaged at the present time in technical industries.

The Association Institute offers a thorough course in the general principles and applications of inorganic, organic, and analytical chemistry, sufficiently complete to enable students to pursue their work with intelligence; to correlate theory and practice; to read technical works with profit; to test the quality and purity of chemicals and to become familiar with the laboratory methods of the trained chemist.

The number of students who are now filling responsible positions

as a result of their work at the school is sufficient testimony of its utility. During the past four years students who completed this course have successfully passed the competitive government examinations for chemical assistants and assistant chemists and have received government appointments. Many others have been placed with large manufacturing concerns. A number of these men have contributed valuable processes which have been adopted by their employers.

The school makes an especial effort to secure positions for men who have taken the course.

EQUIPMENT

The Department of Chemistry is at present using the laboratories of the Massachusetts Institute of Technology through the courtesy of the Chemical Department of that institution. This places at the disposal of our students unequalled facilities for doing the best chemical work.

COURSES

Chemistry I. Elementary. DR. SPEAR

A course of lectures, supplemented by class room and laboratory work, on the elementary principles of inorganic chemistry. The course aims to familiarize the student with the fundamental laws of chemistry and with the preparation and properties of the important elements and their principal compounds.

Chemistry I is open to all men who show that they can pursue the course with profit. The course in physics, given the same evening is almost indispensable to the proper understanding of the subject.

Chemistry II. Analytical. DR. SPEAR and MR. CHESLEY

A practical course in qualitative analysis for the separation and identification of the common metallic elements and the acids. Each student is also required to make a complete and accurate analysis of various mixtures, alloys and chemicals used in manufacturing. The laboratory work is supplemented by a course of lectures and conferences, devoted to a general study of the properties of the common metals and their compounds.

The course is elective for those who have completed Chemistry I or an equivalent.

Text books:

A System of Qualitative Analysis for the Common Elements, by A. A. Noyes, W. C. Bray and E. B. Spear.

(Reprints from *Journal, American Chemical Society.*)

Principles of Qualitative Analysis, W. Boettger (translated by W. G. Smeaton).

Chemistry III. Quantitative Analysis

A course in gravimetric and volumetric analysis. Special attention is given to accurate manipulation, the preparation of standard solutions, the calibration of instruments and to the principles of stoichiometry. The laboratory work is supplemented by a course of lectures and conferences.

Chemistry II and III will require two years for their satisfactory completion.

Text books:

Quantitative Analysis, E. W. Washburn.

Analytical Chemistry, Treadwell and Hall, Vol. II.

Chemistry IV. Organic. DR. NORTON.

A course consisting of lectures and conferences on the principles of organic chemistry as illustrated by the methane and benzene derivatives.

The student is required to prepare in the laboratory a number of organic compounds, selected to show characteristic organic reactions and to give training in the practical separation and purification of organic substances. After this synthetic work the students are given a practical course in organic analysis.

Text books:

Organic Chemistry, 2 vols., Perkin and Kipping; Practical Methods of Organic Chemistry, Gattermann (translated by Schober.) Laboratory notes on Organic Analysis, by the instructor.

Chemistry IV is elective for those who have completed Chemistry III, or for those men who can satisfy the head of the department that they can pursue the course with profit.

Special Courses

A course in iron and steel analysis for the determination of phosphorous, manganese, carbon, sulphur, nickel, chromium and silicon.

Text books:

The Chemical Analysis of Iron, Blair.

On the completion of Chemistry III or IV the student may undertake a short thesis in inorganic, analytical or organic chemistry. The chief object of this course is to give the student experience in the use of the original literature as well as to acquaint him with the methods of scientific research. In 1912-13 courses will be offered in fuels, oils, air, water and food analysis.

Special courses are elective for those men who can satisfy the head of the department that they can pursue the work with profit.

PHYSICS

INSTRUCTOR: MR. BALDWIN.

This course appeals strongly to men engaged in technical work. Instruction is given in the practical application of physical laws. Problems are given throughout the year to test the pupil's knowledge of these laws. A fully equipped laboratory, accommodating thirty students working at one time, makes it possible to give the best of instruction. The exercises will be selected from the following subjects:

Mechanics

Density and specific gravity, simple machines (lever), parallelogram of forces, friction, pendulum, strength of materials, laws of elasticity, liquids and gases.

Heat

Thermometry-coefficients, laws of expansion, specific heat, latent heat.

Light

Reflection, refraction.

Sound

Velocity, wave length, pitch.

Electricity

Magnetism, cells, electromotive force, resistance.

DEPARTMENT OF MATHEMATICS

DIRECTOR: THOMAS E. PENARD, S.B.

INSTRUCTOR: CLARENCE E. EBERT.

The importance of mathematics as a means of mental discipline, and as a necessary basis for those intending to pursue engineering as a profession, cannot be overestimated. The Association Institute offers a large number of courses in pure and applied mathematics adapted to the needs and ability of every student. Students wishing to take work in mathematics other than that here offered are urged to consult Mr. Penard.

Engineering Mathematics. MR. PENARD.

The course outlined below is designed primarily for students taking the engineering courses at the Association Institute; it is hoped, however, that it will be found adapted to the needs of others who wish to obtain a practical knowledge of elementary mathematics. The student is assumed to be thoroughly familiar with the fundamental operations of arithmetic.

Algebra (40 Hours)

Definitions and notation, fundamental operations, factoring, fractions, simple equations with applications to problems chosen from electricity and mechanics, solution of quadratic equations by formula, with applications to problems in electricity and mechanics, and graphical representation of functions, logarithms, and the use of the slide rule, with discussion of precision and rules for significant figures.

Geometry (20 Hours)

Useful theorems relating to plane figures without proofs. Areas of polygons, measurements of the circle, the polyhedrons, the cylinder, the cone and the sphere, definition of the ellipse, hyperbola and parabola, measurement of irregular curves.

Trigonometry (10 Hours)

Definitions of functions, the use of trigonometric tables, evaluation of formulas involving trigonometric functions, examples from engineering, solution of triangles with examples taken from physics and engineering.

Trigonometry B. MR. PENARD.

This course is more extended than the course outlined under Engineering Mathematics. It is especially adapted to the needs of engineering students who desire to continue with higher branches of mathematics, and students preparing for college examinations.

Analytical Geometry. MR. PENARD.

Designed primarily for engineering students, but may be taken to advantage by those seeking general culture. Co-ordinates, loci, the point, the straight line, the circle, the conic sections, general equation of the second degree, co-ordinates in solid analytic geometry and interpretation of equations. The course is fully illustrated by practical problems.

Calculus. MR. PENARD.

Differentiation and integration of algebraic functions, length of plane curves, area of plane surface, area of surface of revolution, volume of solid revolution, successive differentiation and integration, maxima and minima, transcendental functions, center of gravity and moment of inertia.

The division of the subject-matter according to classes of functions and the simultaneous treatment of differentiation and integration, make it possible to introduce applications to problems in physics and engineering from the start.

Descriptive Geometry. MR. PENARD.

A course in this subject will be given provided there are enough students to form a class. Applicants must have attained proficiency in mechanical drawing.

For outline of College Mathematics see Preparatory School Catalog

DEPARTMENT OF MECHANICAL ENGINEERING

INSTRUCTORS: HAROLD S. GRAVES; HARRY P. CROMWELL.

The present is an age of machinery, and thousands of men are engaged in the invention, draughting, construction and operation of every conceivable type of mechanical appliance. To engage in this

work successfully and occupy other than an inferior position — involving long hours, hard work and small pay — one must equip himself in the subjects demanded by this industry. To make such courses available and of real practical value, the Department of Mechanical Engineering has been established: first, to train thoroughly mechanical draughtsmen who are able to enter active office practice and work up in the profession; second, to assist the army of men engaged in mechanical lines to sketch correctly, make finished drawings, tracings and blue prints of various sorts of machines, and to study sufficiently to have an intelligent conception of the laws governing mechanical operations; thus opening up the various avenues which, if followed, lead the student to increased efficiency and greater value as an artisan.

The course outlined below has been so arranged that the student is required to attend the school only three or four evenings per week. When the attendance is for four evenings a week, two of the evenings are given up to instruction in drawing for which no preparation is required. The first three years include subjects now given in the school, and contain the elements of a mechanical engineer's education. The more advanced courses will be given only when the students have satisfactorily completed the elementary subjects. While the number of subjects is not large, in all of the courses the ground is thoroughly covered, and it is believed that upon successfully completing even the first two years, the student will have gained a knowledge of draughting and elementary calculations that will be of great practical value to him.

Those entering as special students may take such subjects as bear directly upon their trade or occupation, provided, that in the estimation of the superintendent, they have had sufficient preparation.

COURSE IN MECHANICAL ENGINEERING DRAFTING

First Year

Engineering mathematics and mechanical drawing I.

Second Year

Practical mechanics and mechanism design, machine drawing, analytical geometry.

Third Year

Calculus, physics, elementary applied mechanics.

ADVANCED COURSES

Applied mechanics, machine design, concrete construction, steam engineering.

The outline of courses not described elsewhere follows:

Mechanical Drawing I. MR. GRAVES; Assistant, MR. CROMWELL.

A course for the first year industrial students in mechanical drawing as follows:

- (a) General instruction: use of drawing instruments, T square triangles, etc.
- (b) Simple projections.
- (c) Nuts and screws.
- (d) Oblique projections.
- (e) Penetration of solids.
- (f) Simple gearing.
- (g) Isometric projections.
- (h) Lettering.

[*Practical Mechanics and Mechanism Design.*]

The course in practical mechanics includes a discussion of the motions and velocities of the parts of a machine, methods of designing cone pulleys and cams, and calculations of problems in belting, differential screws and worms and wheels. Link work in various forms is carefully treated, also the design of wheels in trains, and aggregate combinations, including pulley blocks, differential pulleys and epicyclic trains. The design of gear teeth will be taken up in the course, and some time will be given to a discussion of the production and strength of materials with elementary problems. The mechanism design will be carried on in conjunction with the course in practical mechanics in the nature of home problems to be worked out on the drawing board. While not essential to a thorough understanding of mechanics, students will find the design course of great assistance. A knowledge of arithmetic is necessary for mechanics, while some familiarity with algebra is strongly advised. Mechanical Drawing I or an equivalent is required

SPECIAL NOTE. This course will be omitted during school year of 1911-1912.

Lettering. MR. GRAVES.

Mechanical lettering is of the utmost importance to all engaged in any line of drawing. No matter how well made a drawing may be, poor lettering will ruin its appearance, so that the student who expects to ever become a really valuable man, must be expert not only in

draughting but in lettering also. No student will be graduated who cannot letter well.

Machine Drawing. MR. GRAVES.

The aim of the course is to teach the proper way of making the necessary dimensioned drawings for use in practice. The instruction includes: (a) The making of sketches of the parts of a machine from measurements; (b) the detail scale drawing from the sketches and a tracing; (c) an assembly drawing of the machine.

The course will also include a problem in belting and in cam design for men taking Practical Mechanics and problems in valve gears for men desiring to take up the theory and design of plain slide valves, double valves and link motions.

STEAM ENGINEERING

SUPERINTENDENT: MR. BUXTON.

A course fitting men for the State examinations for licenses for firemen of all classes; third, second, and first-class engineers.

The exact requirements of Massachusetts relating to those who have the charge and management of steam boilers, heating plants and stationary engines, make it necessary for even firemen to hold licenses. In view of this fact large numbers of men desire to fit themselves for this work, and naturally wish to do so in the shortest time, at the least expense, and yet as thoroughly as possible. Having an extensive plant both direct and indirect heating and power, two boilers, pumps, tanks and other equipment, reinforced by a number of additional engines, gauges, reducing valves, gears, indicator, etc., we are prepared to continue the course whereby men are fitted for this line of work in a short time in the most thorough manner. Firing is required of all applicants unless they hold a fireman's license. They are then put to work on the boilers and engines, pumps, etc., and are led gradually into the other features of the work. One special feature of the work that makes it pre-eminent is that our machinery is in *motion* and that men are dealing with live issues.

Fireman's Course. MR. BUXTON.

(a) Furnaces: how constructed, parts, boiler, selling, grate bars, care, and management. (b) Boilers: how constructed; fittings, in-

cluding safety valves, water column, try cock, hand-hole and man-hole plates, safety plug, blow-off cock, steam gauge, back pressure gauge, boiler feed, check valve, globe valves, injectors, inspirator; also an explanation of the dry sheet and its protection. (c) General care and management of boilers. (d) Firing: care of fire, carrying fire, splicing and banking down, blowing down boiler and water column, scraping of tube-scales, blisters, bagging of sheet, foaming, cause of each and remedy, lining up furnaces. (e) Belts: taking up slack, putting on and off, lacing. (f) Oiling: cups and locations; kinds of oils; application to engine and dynamos. (g) Starting and shutting down of plant.

Engineer's Course. MR. BUXTON.

(a) Pumps: setting of pumps and valves on same; putting in linings and packing; general care and management. (b) Hancock Inspirator: its construction, action, care and management. (c) Injector: as above. (d) Slide Valve Engine: setting up, setting valves, taking up lost motion, parts and fittings. (e) Riding Cut-off Engine: as above. (f) Corliss Engine: as above. (g) Steam heating: construction and operation of high and low pressure systems: construction and operation of traps; reducing valves and feed-water valves.

SPECIAL NOTE—This course will be omitted during school year of 1911-1912.

DEPARTMENT OF SURVEYING

SUPERINTENDENT: JOHN W. HOWARD, S. B.

ASSISTANT: W. W. Norton

Course I

The course in surveying consists of four hours instruction each week in the theory of plane surveying and field exercises on Saturday afternoons in the fall and spring.

During the first term the field work consists of practice in the use of the transit and tape in making surveys for determining areas and for making plans. The class work includes methods of computing areas, subdividing land, and all of the common problems of plane surveying.

The second term is devoted chiefly to drawing. Students are required to plot a survey of a city lot on a scale of 40 feet to an inch, to

draw a plate of conventional signs used in topography, and to plot a topographical map on a scale of 100 or 200 feet to an inch.

In the spring the field work consists of practice in using the level for establishing bench marks, running profiles, cross sectioning, etc. The class work includes problems in the use of contour maps, plotting profiles, estimates of earthwork, etc. If time permits instruction is given in stadia and plane table surveying.

Students entering this course should be familiar with elementary algebra and geometry, and plane trigonometry.

Course II

Triangulation: reconnaissance, base-line measurement, signal building, use of heliotropes, measurement of angles, calculation of triangles, calculation of geodetic positions.

Astronomical Observations: observations for latitude, observations for time and longitude, determination of azimuth.

Leveling: precise spirit leveling, trigonometric leveling, barometric leveling.

Topographic Methods: transit and stadia method, plane-table method.

Hydrographic Surveying: methods of locating soundings, use of sextant, measurement of stream flow.

Map Projections: study of the principal projections used in constructing maps.

Students completing the elementary course in surveying, or its equivalent, are qualified to enter this course.

This course will be given as outlined if ten or more students register for the course.

DEPARTMENT OF RAILROAD ENGINEERING

INSTRUCTOR: CHARLES H. RESTALL, S.B., Resident Engineer,
B. & M. R. R.

Very nearly one fifth of the total capital of the United States is invested in railroads and about one and one-half million persons are in their employ. The construction and maintenance of this vast network of roads require the services of several thousand civil engineers of all grades. Many positions are filled by competent men who have

not had the advantages of scientific training, and such men however able, are greatly handicapped in their friendly competition with those who have had the advantages of college training. In such a vast army promotions are frequent, and those desirous of securing the most lucrative positions need, above all else, technical instruction, in order to be eligible for promotion. It is "push" not "pull" that counts today in modern railroad practice, and the man who desires success must deserve success, and must be ready to grasp the opportunity when it presents itself.

The purpose of this course is to give to the non-collegiate civil engineer, or assistant, the instruction which is available only in the best technical schools.

Although the course is of special value to men in the employ of steam railroads, the thorough study of curves and earthworks is very useful to men employed in street railway and city engineering offices.

The instruction is class work and lectures, supplemented by design. Good-sized classes, representing many of the New England railways, took the course during the past four years and several report decided advancement as a result.

Outline of Course

Operations in location of a railroad: reconnaissance, preliminary survey, location. Reconnaissance: purpose governing topographical features: how carried on, instruments used. Preliminary survey: purpose, grades, pusher grades, length of line, curvature, rise and fall, organization of party, field work, form of notes, plotting preliminary map. Location survey: field location, paper location, field work, form of notes. Simple curves: functions, degree of curve, relations between the primary functions, use of tables for curves, deflection angles, deflection distances, offsets from tangents, field methods, ordinates. Simple curve problems: substituting curves ending in parallel tangent, miscellaneous problems, obstacles on tangent and curve. Compound curves: problems, changing P. C. C. to end in parallel tangent, substitution of compound for simple curves. Reversed curves: connecting parallel tangents, connecting non-parallel tangents. Parabolic curves: horizontal, vertical curves. Turnouts: parts of turn-

outs, stub switch, split switch methods, connections of parallel tracks, yard computations, staking out turnouts. Turnout tables. Y Tracks and crossing frogs: computation and layout of Y tracks, crossing frogs for straight and curved tracks. Easement curves: cubic spiral, Searle's spiral, methods of offsets and of reflection angles. Application to compound and reverse curves. Earthwork: slope stakes, cross-sections, different forms of sections. Methods of computing earthwork; averaging end areas, prismoidal formula, prismoidal correction and other methods. Correction for curvature, burrow pits. Earthwork tables and diagrams: their construction and uses. Haul, mass diagram. Yard design: freight yards, passenger yards, yard accessories, round houses, coal track, ash pits, etc. Track: track laying, ballast, rail, joints, drainage. Train resistance: level tangent resistance, curvature, grades. Economics: cost of distance, of curvature, of maximum grade, of rise and fall. Abolition of grade crossings: general problems, special problems, Chicago method of handling traffic, methods of handling work. Railroad signalling: block signals, interlocking signals.

Draughting. The course will be supplemented to some extent by draughting and by railroad designing.

Fieldwork. If necessary to illustrate the principles involved in the course, exercises will be given in the field on a few Saturday afternoons in the spring.

Preparation. Algebra, geometry, trigonometry, surveying.

If not qualified by having passed the above subjects a student will be admitted as a special student on approval of the Superintendent of the course.

SPECIAL COURSES

Concrete Design and Construction.

MR. BRADBURY.

Course I.

This course is given on Tuesday nights throughout the year and consists of thirty lectures of an hour's duration each. The course is of a non-technical nature and is outlined especially for inspectors, foremen and others who desire instruction in the practical elements of concrete construction.

DETAILED OUTLINE OF COURSE I.

(a) *Building Materials*: Composition and manufacture of cement and steel; specifications and standard tests for cement; specifications for steel; tensile strength of steel; ingredients, proportion, consistency and quality of concrete; strength of concrete of various proportions, age and consistency; types of concrete reinforcements; strength of timber.

(b) *Concrete Construction*: Handling materials; proportioning and mixing concrete; depositing concrete; preparing and placing the reinforcement; construction and removal of forms; effect of weather conditions; surface finish.

(c) *Plan Reading*. — Study of typical plans and specifications for concrete work.

SPECIAL NOTE—Course I will be omitted during school year of 1911-1912.

COURSE II.

This class meets on Tuesday and Thursday nights throughout the year and consists of sixty periods of two hours duration each. A lecture of about one hour is given at the beginning of each period; the remainder of the time is devoted to class work on calculations, designs, etc. The object of this course is to treat the subject of plain and reinforced concrete design in as complete a manner as conditions will permit. In order to accomplish this, the course begins with a study of the fundamental principles of mechanics and the strength of materials which form the very foundation of all structural design and without a thorough understanding of which it is impossible to proceed intelligently with the designing of reinforced concrete. Following this the general properties of concrete and steel and also the theoretical and practical principles of design are thoroughly treated.

DETAILED OUTLINE OF COURSE II.

(a) *Elements of Mechanics*. — Laws of equilibrium; parallelogram of forces; reactions; bending moments; shear; centres of gravity; moments of inertia.

(b) *Strength of Materials*. — Discussion of stress and strain; modulus of elasticity; elastic limit; ultimate strength; working stresses; common theory of beams.

(c) *Design of Plain Concrete.* — Design of columns, footings, retaining walls, dams, etc.

(d) *Design of Reinforced Concrete.* — Function and qualifications of the steel reinforcement; types of reinforcement; theory of the reinforced concrete beam; effect of continuity in beams; design of reinforced concrete beams, girders, floor slabs roofs, columns, footings, walls, retaining walls, etc.

(e) *Specifications.* — General discussion of various municipal laws and other specifications bearing upon concrete construction.

PREPARATION. — Algebra, Geometry, Trigonometry.

If not qualified by having passed the above subjects a student may be admitted as a special student on approval of the superintendent of the course.

Window Dressing

One of the most effective means of selling goods is through the artistic window display, and any observing person will note the great care with which high-class stores construct and operate their show windows. The work of the buyer, sales-manager, advertiser and window dresser are closely related, and each assists the other. The window dresser, therefore, has become a person of importance in every large establishment, his responsibilities great and compensation liberal.

Opportunity

The refined methods of merchandising now generally employed give the window dresser a rare opportunity for working up a successful practice, as the merchants demand his services, regard the show windows of equal importance with the newspaper advertisements, and the window dressers' services are constantly increasing.

Instructor

The instructor in window dressing, Mr. Hugh J. Knowlton, is a man of broad training and experience. He has been employed as window dresser in a number of leading commercial houses and else-

where, and was formerly President of the Window Dressers' Association of America. His success with our men has been remarkable.

Equipment

Our building is equipped with a display window and all the necessary forms, stands and materials for the actual display of goods. We also have made arrangements for the use of large quantities of dress goods, fabrics, underwear, hosiery and other material.

Outline of the Course

Care and handling of the material, color schemes and lighting effects, originality of design, general attractiveness, use of the fewest goods to the best advantage, simplicity, workmanship, condensing and expanding a window display, ornamentation of a window display, draping, pleating and puffing.

Length of Course

The course covers a period of three months, the rate being \$10 a month, payable monthly in advance. The use of all appliances and material is free.

The course is repeated every three months throughout the year.

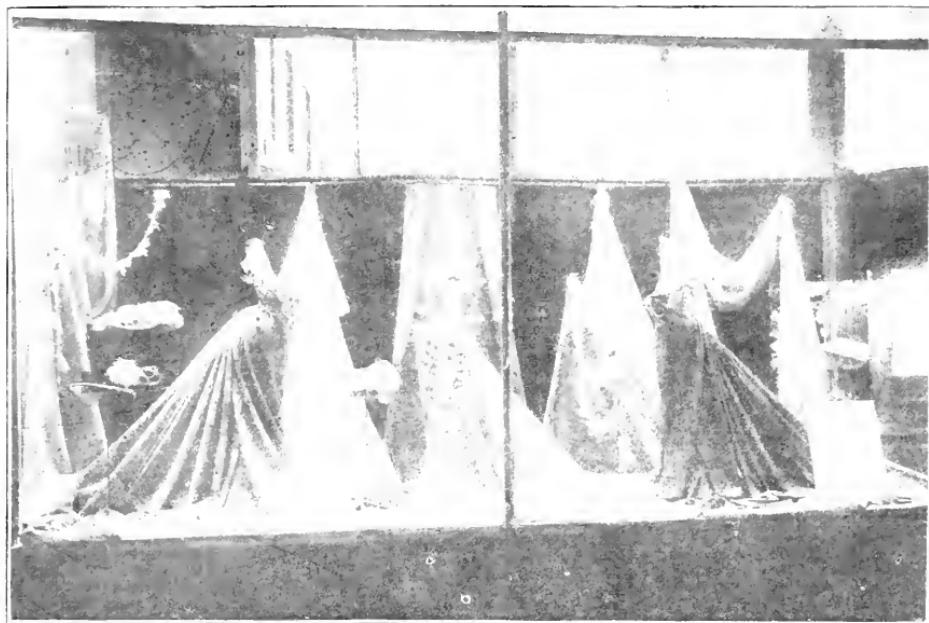
Results

At the time of going to press, the second class is finishing its work. We are much gratified to know that, of the first class of ten men completing their work in May, seven have secured positions as window dressers at salaries ranging from \$18 to \$25 a week. None of these men had previous experience, and all are making excellent progress.

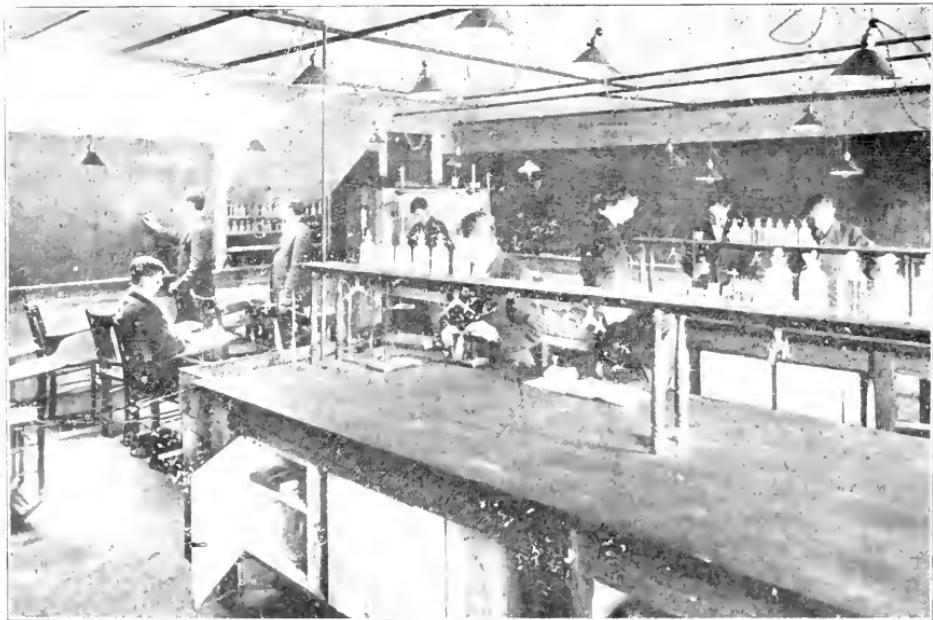
SCHEDULE AND TUITION

Special Note:— These rates are in addition to membership.

Course	Evenings	Time	Tuition
Architecture I	Mon., Fri.	7.00- 9.00	\$6.00
Architecture II	Mon., Fri.	7.00- 9.00	10.00
*Architecture III			
Architecture IV	Mon., Fri.	7.00- 9.00	8.00
Calculus	Tuesday	8.00- 9.00 A	10.00
Chemistry I (Lecture) (Laboratory)	Mon., Fri.	7.00- 8.00 6.30-10.00	BCD 21.00
Chemistry II (Lecture) (Laboratory)	Tuesday Thurs., Fri.	7.00- 8.30 6.30-10.00	BC 36.00
Chemistry III (Lecture) (Laboratory)	Tuesday Thurs., Fri.	7.00- 8.30 6.30-10.00	BC 36.00
Chemistry IV	Tues., Wed.	6.30-10.00 BC	45.00



WINDOW DRESSING



CHEMISTRY I LABORATORY

Course	Evenings	Time	Tuition
*Concrete I			
Concrete II	Mon., Thurs.	7.30- 9.30 G	\$25.00
Engineering Math., Sect. I	Mon., Fri.	7.00- 8.00	10.00
Engineering Math., Sect. II	Mon., Fri.	8.00- 9.00	10.00
Engineering Math., Sect. III	Mon., Fri.	9.00-10.00	10.00
Firing	Mon. Wed., Fri.	7.30- 9.30 E	15.00
Freehand Drawing I	Tues., Sat.	7.30- 9.30	5.00
Freehand Drawing II	Tues., Sat.	7.30- 9.30	5.00
Geometry, Analytical	Tuesday	7.00- 8.00 F	10.00
Geometry, Descriptive	Tuesday	8.00- 9.00 F	10.00
Illustrating and Cartooning	Tues., Thurs., Sat.	7.30- 9.30 B	22.50
Industrial Design	Tues., Sat.	7.30- 9.30	5.00
Lettering	Mon., Fri.	6.30- 7.30	3.00
Machine Drawing	Mon., Fri.	7.30- 9.30	8.00
Mechanical Drawing I	Mon., Fri.	6.30- 9.00	6.00
*Mechanism Design			
Physics	Mon., Wed., Fri.	8.00- 9.00 BD	21.00
*Plan Reading and estimating			
Railroad Engineering	Mon., Thurs.	7.30- 9.30 G	25.00
*Steam Engineering			
Surveying	Tues., Thurs.	7.30- 9.30 GJ	25.00
Trigonometry	Tuesday	7.00- 8.00 A	10.00
Window Dressing	Mon., Wed., Fri.	7.30- 9.30 K	30.00

*Courses omitted 1911-1912.

A First term. B payable in three equal instalments: upon entering, December 1 and February 1. C A laboratory deposit of \$2 for Chemistry I, and \$3 for all other courses in Chemistry must be paid before desks will be assigned. This fee will be credited toward the laboratory fee for breakages, etc. D Chemistry I and Physics combined, \$36, payable as Chemistry. E Three months. F Second term. G \$5, payable upon entering; \$10 December 1; \$10 February 1. J Field work included. K Payable \$10, a month in advance.

The tuition quoted is for the two terms (fifteen weeks each) unless otherwise specified and is in addition to either an educational (\$5.00) or gymnasium (\$10.00) membership in the Young Men's Christian Association. For the many membership privileges see "Year Book."

The tuition for all courses is payable in advance unless stated to the contrary, in which case times of payment are indicated.

Students who discontinue a course, but who have attended four or more recitations in the subject will be required to pay a term's tuition.

No student is permitted to transfer from one course to another without consulting the Dean beforehand and receiving a transfer order which must be presented at the main office for the proper ticket.

Additional Information

Examinations are held at the close of each term.

Students who are obliged to be absent from any classes should notify the Dean in advance of same.

Certificates are issued to students completing certain prescribed courses.

The Association reserves the right to retain for its annual exhibition, and for any other purpose which it may deem necessary, drawings made by students.

Scholarships. As an aid to worthy men who desire an education and are unable to pay in full even our slight charges, a limited number of scholarships has been provided, which will be judiciously distributed by the General Secretary, to whom application should be made.

Entrance Requirements

Any man of good character regardless of age, occupation or creed, with adequate general education may be enrolled in the school.

A student may elect any subject or combination of subjects which best serves his particular needs. However, to prevent loss of time and expense to the student, he will not be allowed to elect courses which, on account of inadequate preliminary training and experience, he could not pursue with profit. The Dean should be consulted before registration.

Suburban Association Members.

All tickets held by members of the Cambridge, Chelsea, Everett, Malden, Melrose, Newton, Quincy and Somerville Associations will be honored for social privileges in the Boston Association. Holders of such tickets are allowed credit of \$2.00 on either an educational or a gymnasium membership.

For information not contained in this catalogue, call upon or address Frank P. Speare, Educational Director, 10 Ashburton Place Boston. Telephone, Haymarket 145.

A S S O C I A T I O N I N S T I T U T E

ANNOUNCEMENT

OF THE

Evening School of Electricity

1911-12

CALENDAR OF ELECTRICAL SCHOOL

1911

September 28, 29, 30	Registration
October 2	Opening of Term
October 12	Columbus Day, Holiday
November 30	Thanksgiving, Holiday
December 25	Christmas Day, Holiday

1912

February 22	Washington's Birthday, Holiday
April 19	Patriot's Day, Holiday
May 11	Closing of Term

OFFICERS OF ADMINISTRATION

ARTHUR S. JOHNSON, President

GEORGE W. MEHAFFEY, General Secretary

FRANK P. SPEARE Educational Director

GALEN D. LIGHT, A.B., Superintendent of Evening Schools and Bursar

OLIVER T. NOON, S.B., Secretary

WILLIAM LINCOLN SMITH, S.B., Dean

EDUCATIONAL COMMITTEE

JOHN E. ROUSMANIERE, *Chairman*

WILLIAM E. MURDOCK

JOHN SHEPARD

D. CHAUNCEY BREWER

ALBERT H. CURTIS

ADVISORY BOARD

C. S. SERGEANT, Vice-President of the Boston Elevated Railroad

SYDNEY B. HOSMER, Superintendent of Installation Service, Edison Electric
Illuminating Company

GEORGE K. MANSON, Assistant Chief Engineer New England Telephone and
Telegraph Company

FACULTY

WILLIAM LINCOLN SMITH, S.B., Dean

LOREN N. DOWNS, Jr., S.B., Alternating Current Theory and Laboratory

RALPH M. GEORGE, S.B., Direct and Alternating Current Laboratory

HAROLD S. GRAVES, Mechanical Drawing

FRED G. HARTWELL, Electrical Practice and Construction

THOMAS E. PENARD, S.B., Mathematics

WILLIAM LINCOLN SMITH, S.B., Electricity, Theory and Practice

CHARLES B. GRAY, Office Secretary

KATHERINE M. VINTON, Secretary to the Educational Director

ANNOUNCEMENT

The Association School of Practical Electricity was opened in January, 1905, in response to an urgent demand for instruction of a thorough nature in this subject, including the handling of apparatus and suitable laboratory equipment. It can be readily appreciated that there is a vast difference between talking about things and *doing* things, and the fundamental basis of the school is to teach the student by having him perform the experiments and do the actual work. The success of the school, the interest of the men, and the quality of the work have been most satisfactory.

EXPERT ADVISORY BOARD

Before undertaking the establishment of a school so unique, an Advisory Board was secured, composed of men who are actively engaged in the large electrical industries in and around Boston, and who could bring to the Association the advice which comes from actual business knowledge of the needs of the great mass of electrical workers who have not had the opportunities of a technical education.

The instructing staff has been selected with great care from men who are eminently qualified to instruct in the special branches of electricity which have been assigned to them. Among them will be found teachers in technical schools as well as men taken from commercial positions in which a thorough knowledge of some branch of the art is absolutely necessary.

TWO DISTINCT TYPES OF WORK

Two distinct lines of work are offered by this school, both of which combine theory with the laboratory practice and personal instruction, features otherwise obtainable only in colleges.

The first of these consists of purely practical instruction along elementary lines covering those matters which are of interest and importance to Wiremen, Engineers, Building Superintendents, Janitors, and others of like interests. The courses of instruction given in this department are outlined in brief below, but no attempt has been made to give a detailed synopsis of the matters covered as it serves little useful purpose and it is much wiser for the prospective student to

interview the instructor personally, or if that cannot be done, by letter, as a much clearer understanding on both sides can be reached. Men often apply for a course which after a while turns out not to be the one best suited to their needs.

The second line of work consists of as thorough a course in general Electrical training and allied subjects as it is possible to give in three seasons of continuous study, and is planned for those who desire to obtain as complete a knowledge of electricity as possible but are not able or prepared to give their full time in attending a regular technical day school.

It is intended to make the program sufficiently complete both in theory and in practice to give the student an intelligent conception of electrical laws, apparatus and practice.

In both departments of the school the instruction is given by means of lectures and laboratory practice and in the latter the classes are taught by several instructors so that as far as possible the student is given personal instruction, it being intended that no instructor shall, if possible, be required to handle more than eight men at a time.

It should be understood, however, that every facility is allowed for a student to pass from one department to the other at any time provided that in the opinion of the Dean he can do so to advantage.

The One-Year Course is under the Supervision of Mr. Hartwell, to whom inquiries and requests for special information should be addressed.

OUTLINE OF THREE YEAR COURSE

First Year. Preparatory Studies

Mathematics: Monday and Friday evenings, one period per evening for thirty weeks.

Physics: Monday and Friday evenings, one period per evening for first twenty weeks. Laboratory work Wednesday evenings for first twenty weeks.

Mechanical Drawing: Monday and Friday evenings, one period per evening for ten weeks following the course in Physics.

General Electricity: Lectures Wednesday evenings, 6.30 to 7.30 for twelve weeks following the course in Physics.

Laboratory work on measurements etc., 7.30 to 9.15 Wednesdays of same twelve weeks and from 6.30 to 9.15 Tuesdays for last two weeks of term.

Second Year. General Courses and Direct Current Practice

The second year is rich in practical experience and keeps the student employed in installing, operating, measuring, and testing electrical devices. Upon the completion of this year the student can read scientific books understandingly and has much of the material requisite for success as a practical electrician.

The Lecture Courses are as follows:

- Course I. Electrical Measurements. Mr. Smith.
- Course II. Principles of Electric Wiring. Mr. Smith.
- Course III. Wiring Appliances, Fittings and Practical Methods. Mr. Hartwell.
- Course IV. Theory of Dynamo Machinery and Direct Current Machines. Mr. Smith.
- Course V. Theory and Practice of Direct Current Motors.
- Course VI. Direct Current Power Distribution. Mr. Hartwell.
- Course VII. Electric Lighting. Mr. Smith.
- Course VIII. Elements of Alternating Currents. Mr. Smith.

The Laboratory Courses are as follows:

- Course Ia. Electrical Measurements. Messrs. Smith and George.
- Course IIa. Auxiliary Electrical Apparatus. Messrs. Hartwell and George.
- Course IIIa. Construction and Operation of D. C. Dynamos. Messrs. Hartwell and George.
- Course IVa. Elements of Testing of D. C. Generators and Motors. Messrs. Smith and George.

The class meets three nights per week for thirty-two weeks and presumably on Tuesday, Wednesday and Friday nights.

At the beginning of the laboratory work if the class is large it may and probably will be necessary to divide it into two sections, in which case one section will presumably have laboratory work on

Wednesday and the other on Thursday, both sections meeting together on Tuesday and Friday.

For the first eight weeks no laboratory will be assigned. For the following twelve it will be assigned for one evening, hours from 7.15 to 9.15, but the laboratory will be open so that students may begin work at 6.30 if they desire. Students are assigned to experiments in groups of two or three and it is very necessary that attendance be regular as otherwise a serious disturbance of the work is caused.

For the last twelve weeks laboratory work is assigned for two evenings per week, and the two sections of the class will presumably meet as follows:

Section A, on Monday and Tuesday for laboratory work.

Section B, on Thursday and Friday for laboratory work.

Sections A and B on Wednesday for lectures.

This laboratory arrangement is made because practically all of the experiments require more than one evening for completion, and consecutive evenings are necessary so that the wiring arrangements and other connections made up by groups of one section shall not be disturbed by groups of the other section. Also because the nature of the work requires that close personal instruction which cannot be given unless the number of students per instructor is made as small as may be.

Third Year. Alternating Current Theory and Practice

The third year is given over to the discussion of alternating practice and theory and requires close application and hard study on the part of the student. The work is difficult but is daily becoming more and more important to the student who desires to qualify himself for successful progress in his vocation and to fit himself for success in positions which he may obtain, as practically all modern power distribution systems are alternating entirely or in part.

The Lecture Courses are as follows:

Course I. Theory of Alternating Currents. Mr. Downs.

Course II. Alternating Current Measurements. Mr. Downs.

Course III. Generators and Motors. Mr. Smith.

Course IV. Rotaries and Transformers. Mr. Downs.

Course V. Power House Engineering. Mr. Smith.

Course VI. High Voltage Distribution and Apparatus. Mr. Downs.

The Laboratory Courses are as follows:

Course Ia. Alternating Current Measurements. Messrs. Downs and George.

Course IIa. Operating and Testing of A. C. Apparatus. Messrs. Downs and George.

During the first fifteen weeks attendance is required on but two evenings, Tuesday and Thursday, but it is expected that a third evening will be spent in working problems and doing other necessary home work, imperative to satisfactory progress in the school.

During the last seventeen weeks three evenings are required, the third evening being decided to suit the mutual convenience of the majority of the class and the instructors.

COURSE IN DETAIL

General Electricity (1st year, last term)

Simplest electric phenomena. Opposite charges, early electric theories. The Electron theory. Conductor and insulator. Field of force. Law of inverse squares. Influence. Electrophorus. Influence machines. Capacity and condensers.

Current flow. Electrolysis. Electrolytic dissociation. Voltaic battery. Modern theory of action. Electromotive force. Polarization. Reversible and irreversible cells. Types of batteries. The storage cell. Ohms Law, resistance. Divided circuits, Kirchoff's Laws etc. Heating effects of current.

Electric transfer of energy. The Joule and Watt. Power, etc.

The Magnet. Lode-stone. Formation of Magnets. Permanent and temporary magnets. Field of magnet, magnetic lines of force. Magnetic induction. The earth magnetized. How it becomes so. The electron current in the atom. Compass and variations. Dip. Theory of magnetism.

Oersted's discovery. Magnetic effects of a current. Field surrounding a current. Mutual action of current and magnet. Mutual action of two currents. Electro-magnets. Electro-magnetic induction. Lenz's law.

Light, electric and heat radiation compared. Hertz's experiments, Maxwell's theory. Etheric waves. Radiant energy.

Electrical Measurements. (2nd year, 1st term)

Necessity of measurement. What measurement is. Making of measurements. Direct and indirect measurements. Accuracy. Precision. Sources of error. Constant and variable errors. Laws of deviations. Curve of error. Average deviation. Huge error. Mistake. Representation of results. Analytical and graphical methods. Curve plotting. Choice of scales. Interpretation of curves. Interpolation and extrapolation.

Units. Legal electrical units. Working standards. Instruments: Ampere and Volt meters. Wattmeters, Bridges, etc. Sensitive galvanometers. Mirror and scale. Shunts, and other devices.

Methods of measurement. Current. Electromotive force. Resistance. Power. Capacity. Magnetic induction. Permeability, etc.

Calibration of instruments. Complete and detailed example of correct experimentation.

Principles of Wiring, etc. (2nd year, 1st term)

Preliminary considerations. Fire risk. National code. Examples of electrically caused fires. Systems of distribution. Two-wire; three-wire; multi-wire. Tree and pocket wiring. Drop in the line. Calculation of line loss. Size of wire for a given potential drop. Uniform feeder drop. Circular mils.

Systems of wiring. Cleat. Moulding. Rigid and flexible conduit. Knob and tube.

Wiring a house. Preliminary. Laying out circuits. Mains. Service switch. Cutout and meter. Switches. Control of lamps from different points. Sizes of wire. Carrying capacity. Tests.

Wiring fittings, appliances, switches, cutouts, fuses, cabinets, outlet boxes. Freak appliances, etc.

NOTE. In this course it is planned to have several special lectures by inspectors, insurance men, etc.

Dynamo Machinery

Magnetic field. Flux density. Magneto-Electric induction.

Magnetic permeability. Magnetomotive force. Reluctance. Magnetization curves. Air-gap. Joints in circuit. Heat effects. Residual magnetism. Cycles of magnetization. Hysteresis.

The Armature. Ring, pole, drum, disc. Field magnet excitation. Magneto. Series. Shunt and compound dynamos. Cross magnetization, sparking. Demagnetization. Cross reluctance. Cross compounding. Concentration of field. Self-compensating armatures. Eddy currents. Forms of field magnets. Magnetic leakage. Exciting ampere turns. Space factor. Armature windings. Commutator and brushes. Magnet yokes. Field poles. Field windings. Armature core bodies. Commutator construction. Characteristic curves. Efficiency curves. D. C. generators. Methods of driving representative generators.

Direct Current Motors

Fundamental principles. Motors and generators. Counter E. M. F., motor equation. Distortion of field. Efficiency. Losses. Motor laws. Speed and torque. Windings. Series, shunt and compound motors on constant potential circuits. Relations of torque, speed, field strength, armature conductors, lead, etc. Starting, stopping, reversing, series parallel control. Railway motors.

Distribution of Power

Power stations. Location. Choice of generating and transmission systems. Steam engines, reciprocating and turbine. Water wheels. Generators. Storage batteries. Auxiliary apparatus. Switchboards. Switchboard Equipment. Conductors. Wire. Distribution systems. Feeders and mains. Multiple wire systems. Pressure regulation. Overhead and underground systems. National Code rules. Statutory and Municipal regulations.

Sub-course on Management of Dynamos in connection with the laboratory work.

Electric Lighting

Historical. Incandescent lamps. Filaments. Voltage. Candle power. Arc lamps. High efficiency lamps. Illumination. Optical principles involved. Shades and reflectors. Photometrical determinations. House lighting. Halls, shops, etc. Street lighting.

Elements of Alternating Currents

Definitions. Armature cores and windings. Cycle. Frequency. Period. Advantages and disadvantages of alternating currents. Characteristic features of alternating currents. Comparison of power. Ohms and Joules laws as applied to D. C. and A. C. work. Kirchoff's laws. Graphic representation of alternating waves. Form factor. Instantaneous and average power delivered. Synchronism. Phase difference. Inductance. Capacity. Reactance. Impedance. Resonance.

Third Year Course

We do not attempt to give similar outline syllabi for the third year lecture courses because they are so closely interrelated that no sharp line of demarcation exists among them, but in general it may be said that the subjects are covered in full detail in a manner similar to the second year courses as described above.

Among the subjects treated in addition to those listed under the Alternating Course of the second year (which are here repeated with a treatment very much more in full) are the following:-

Theory of Alternating Currents

A C series circuit. Parallel circuits. Combinations of the above. Resonance in series and parallel circuits. The condenser as a compensator for lag. Single and polyphase systems. Y and mesh or Delta connections. A. C. measuring instruments and methods of measuring power in single and polyphase systems.

Alternators

General theory. Windings. Commercial types and ratings. Effective resistances. Armature reaction. Armature reactance. Regulation by exact and approximate methods. Generator losses and efficiencies. Guarantees as to regulation and efficiency and methods of checking the same. Parallel operation of alternators. Methods of synchronizing. Requirements for satisfactory parallel operation.

Transformers

General theory. Step up and step down transformers and their application to lighting and power work. Types of transformers.

Ratings. Constant current transformers. Instrument transformers. Auto-transformers. Regulation. Losses and efficiencies. All-day efficiency vs. instantaneous efficiency.

Motors

Synchronous Motors. Their field of usefulness. Use as a condenser for improving power factor and regulation of transmission lines. Induction motors. Theory. Commercial types. Field of usefulness. The Heyland or circle diagram as a means of studying the induction motor. Single phase induction motors and methods of starting the same. The A. C. series motor and its applications. The new G. E. Repulsion Induction Motor.

The Conversion of A. C. to D. C.

The synchronous converter. Regulation. Losses and efficiency of the same. The Mercury Arc Rectifier, its operation and usefulness. Its efficiency.

In this course a large number of problems are introduced which illustrate the principles taught and the solution of which are of great help in the understanding of the work. Frequent class-room recitations and problem work at the board give admirable opportunity for the clearing up of hazy points.

The treatment is by mathematical analysis and graphic diagrams and is planned in such a way as to overcome so far as possible the disadvantage of the lack on the part of the students of a knowledge of calculus and higher mathematics. The difficulties are presented as clearly as possible and special effort made to illustrate every principle by diagrams, curves and practical examples.

LABORATORY COURSES

Electrical Measurements

EXPERIMENTS. Resistance by substitution. Resistance by Ohms law. Resistance by direct deflection. Wheatstone Bridge. Measurement of Insulation resistance. Slide wire bridge. Variation of resistance with temperature. Specific resistance. Measurement of current by Electrolysis. Calibration of ammeter. Calibration of

voltmeter by potentiometer. Power measurement by calorimeter. Comparison of electrostatic capacities. Shunt method of measuring current. Magnetization of iron.

Auxiliary Apparatus

Study of circuit breakers. Test and action of fuses. Study of low tension ground detectors. Test of a lifting magnet. Test of a tractive magnet. Calibration of integrating Wattmeter. Test of meter torque. Study of constant-potential arc lamps. Study of incandescent lamps. Test of Wright demand meter. Study of Non-protected motor starter. Of a No-voltage release starter. Of an Overload release starter. Of a Distant-control starter. Of a fully protected motor starter and speed controller. Study of series parallel control.

Construction and Operation of D. C. Dynamos

Study of machine connections. Adjustment of brushes. Effect of reversed rotation, etc. Reversal of motor. Shop testing. Measurement of cold resistance. Mechanical inspection. Cold regulation. Sparking test. Temperature rise. Locating faults. Operating Shunt generators in parallel. Operating compound generators in parallel. Three wire distribution. Same with balancing set. Three wire generator. Study of Booster action.

Elements of Dynamo Testing

Testing of primary and secondary batteries. Measurement of armature circuit resistance. Relation between speed and voltage in an unloaded separately excited generator. Characteristic curves of a Separate — Shunt — Series — Compound Generator. Static torque of Series and Shunt motors on Constant potential circuit. Relation between speed and voltage at the terminals of shunt motor with constant field. Change of speed of same with field excitation, armature volts constant. Speed variation of same with variable terminal voltage. Load characteristics of a Shunt motor. Same of a Series motor on Constant potential. Of a Compound motor on Constant potential. The Stray power method of testing. Use of Calibrated motor as a Transmission dynamometer. Electrical supply of losses at Constant potential. Testing of railway motors.

Third Year Laboratory Course

This includes experiments on Calibration of Integrating Wattmeters. Voltage measurements on series circuits. Three Ammeter methods of measuring power in a single phase circuit. Efficiency test on single phase induction motor. Efficiency test on three phase induction motor. Stroboscopic and other methods of measuring slip. Transformer connections — series and parallel on single phase circuits, and star and mesh on three phase circuits. Transformer core losses. Efficiency of transformers. Ratio of transformation of transformer. Paralleling of alternators. Study of synchromizers. Ratio of transformation in Synchronous Converters. Efficiency of synchronous Converter. Characteristics (open and short circuit) of alternator, both single and three phase. Calculation of regulation. Synchronous motor operation and determination of V curves. Operation of Constant current transformer. Efficiency of constant current transformer.

OUTLINE OF THE ONE YEAR COURSE

In this Course it is intended to give as much theory as is necessary to the intelligent understanding of the principles which underlie the more common duties of an electrician and which are required for the proper conception of the subjects which the student may later read himself; together with as much practical experience in the handling of all the various parts of all kinds of electrical equipment as can be given in this length of time.

This course is designed for men who wish to obtain as much working knowledge as they can in a brief period without attempting the far more complete study of the theoretical principles and advanced matters which are given in the longer course. It should appeal to Engineers, Superintendents of Buildings, Janitors and others who are frequently called upon to perform certain lines of electrical work as well as those engaged in electrical work who know something along certain particular lines, but who wish to extend their knowledge and obtain experience along others as well.

The course consists of lectures and laboratory experiments on the following subjects:—

Electricity

Magnetism. Ohms Law. Power measurements. Batteries. Open and closed types and their uses.

Bells

Different types, their uses and different methods of connecting, adjusting and testing. Annunciators, different types and uses. Burglar alarms, types and methods of installing and testing.

Gas Lighting

Different burners and auxiliary apparatus. Circuits and most common causes of trouble. Methods of testing for and diagnosing trouble.

Electric wiring

Old house work. New house work. Moulding. Conduit. Knob and tube and cleat work: these will be carefully explained as also connections for different switches and electrical fittings. These will also be discussed in demonstration lectures.

Testing for open, short and grounded circuits.

Two and three wire systems

Arc lights. Different types shown and connections and principle explained. Incandescent lights of different kinds.

Motor starting boxes

Controllers. Field rheostats. Purpose and methods of connection.

Motors will be taken apart and assembled properly, connected and operated—each part being explained with reasons for all connections, etc.

Fitting and setting brushes

Causes of sparking and means of remedying them.

The same matters in connection with Generators.

Parallel running of shunt and compound machines.

Switchboard-connections.

The above is not intended to be a fixed and unchangeable scheme but may be compressed in parts and expanded in others to suit the students needs. The class may be subdivided into sections which will put the major part of the time into different subjects.

Our equipment will enable the students to make all connections for a Two-wire Panel, and paralleling of two Two-wire generators; also a Three-wire Panel and connections for paralleling two Three-wire generators; also for paralleling two Two-wire generators (in series) with a Three-wire generator. Also a Booster Panel and a Balancer Set Panel.

Although the course is fairly and clearly outlined it is extremely desirable that all who are interested call or write for further information and that each make his special wants known so that the real value of the course to him may be fully developed.

Men taking this course may enter the three-year course in either the 2nd or 3rd year as Special Students, but not to be considered for the three-year certificate except upon passing all requirements demanded of the regular men.

SPECIAL WIREMEN'S COURSE

A course of lectures nominally ten in number (although the number may be increased if necessary) will be given this season by Mr. Smith upon "The National Electrical Code" of rules governing the installation of Wiring and Apparatus. In this course the Code will be taken up and studied Article by Article, the purpose of each and the interpretation being considered. The lectures will be illustrated so far as possible, showing good and bad installations, cases of damage (both fire and life) where the same has been traced to faulty wiring will be considered, and doubtful points of what will probably be approved by Inspection Departments will be analyzed.

The text book used will be the 1911 Edition National Code and the Interpretation Dept. of Electrocraft conducted by the National Inspectors' Association. This association consists of a large number of Inspectors and other interested persons from all over the United States and Canada. It has an Executive Committee of 15 selected from different jurisdictions. Whenever a member meets with some controversial point in the Code, or argument between him and other parties at interest, he sends the question to the Secretary who submits it in general terms to the members of the Executive Committee, each of whom returns his individual decision; these are then collated and published from month to month in "Electrocraft," and thus become

although not authoritative by any formal action the best guide we have to the interpretation of the rules by selected men throughout the country.

In connection with this course it may be stated that Mr. Smith is the Municipal Electrical Inspector for the town of Concord, and also Secretary of the Massachusetts Association of Municipal Electrical Inspectors as well as of the National Electrical Inspectors Association. This course if intelligently pursued cannot fail to be of great value to men practically engaged in the business of wiring buildings, and it is hoped that men taking it will bring forward all possible questions on the Code which arise in their own experience or in that of acquaintances in the business.

This course will be required of 2nd-year men; and of all one-year men who wish to handle wiring problems. It is also open at a moderate fee to any who desire to become more conversant with the Code and with the position of Inspectors regarding it.

LABORATORY

The laboratory is well equipped with apparatus and possesses a satisfactory set of instruments for teaching the principles of measurements including Slide-wire and Carey-Foster Bridges, Laboratory Bridge, Portable testing set, Potentiometer, apparatus for testing insulation, together with a large assortment of minor apparatus which can be combined in many ways for the exigencies of any particular test which may be desired for some special instruction.

The equipment of instruments for practical measurement is very complete consisting for use with direct currents of a large number of Weston D. C. ammeters and voltmeters of various types ranging in size from 1 to 100 amperes and from 3 to 750 volts, many of the ammeters being fitted with interchangeable shunts, and the voltmeters with extension coils largely increasing their capacity and usefulness.

For alternating current work there are six Weston portable ammeters and eight Westinghouse switchboard ammeters, all fitted with current transformers for 6600 volt circuits with 50 and 25 ampere primaries and 5 ampere secondaries, also three with 60 ampere secondaries and three with 250 ampere secondaries. Also 4 Weston portable voltmeters and six Westinghouse switchboard voltmeters with 150 volt scales and all supplied with potential transformers of 10 and 20 to 1

ratio. Two G. E. switchboard type recording three phase wattmeters, and one Westinghouse round pattern one, three single phase induction type watt hour meters, several General Electric iron clad indicating wattmeters, and a pair of high torque General Electric Test meters.

There is also a large and complete equipment of auxiliary apparatus, as synchronizers, power factor indicators, frequency indicators, speed counters, tachometers, Proney brakes, and the many minor pieces of apparatus needed in practical testing and operating of machinery.

There are among machines:

A pair of specially made, matched machines, arranged to run either as single-phase, two-phase or three-phase generators or motors, as well as synchronous transformers, double current generators or, on the D. C. side as shunt, series or compound generators or motors, and also as three wire generators on the Dobrovolsky plan.

Two specially matched, $18\frac{1}{2}$ horse, series motors fitted to a K-10 G. E. series-parallel controller, with brakes, etc., for efficiency and other tests.

A 60-Horse power 60 cycle single phase 500 volt alternator, a smaller ($7\frac{1}{2}$ -Horse power) special G. E. 60 cycle 250 volt alternator revolving field, tapped for either 1, 2, 3, 6 or 12 phase currents and supplied with special *rotors* changing it into a synchronous, or induction motor of three types as well as into a frequency changer, a Thomson-Houston Inclined coil, compound generator, a 25-Horse power Westinghouse Compound generator, which can also be operated as a motor, and fifteen other direct and alternating motors of different types and sizes, these being used mostly for individual work.

There has recently been added three 16 kilowatt General Electric Constant Current Transformers with 3.5 ampere secondaries and 2200 volt primaries, together with the transformers necessary to operate them from the large 60 kilowatt generator. Also a $2\frac{1}{2}$ horsepower General Electric Induction motor for 60 cycles and 220 volts.

The laboratory equipment is as will be readily seen very complete and suitable for teaching in a thoroughly effective manner, while the few remaining lacunæ are being readily filled up. The total value of the present equipment is not far from \$12000.

ADDITIONAL INFORMATION

In addition to the above regular courses of the School it is intended that, if sufficient men apply to cover the cost, courses will be given on the subject of wireless telegraphy, induction coils and firing systems for gasoline engines, etc.

Also should a sufficient number of men apply to warrant the formation of a class it is intended to arrange for a lecture and laboratory course in telephony. This, however, would hardly be warranted for a less number than fifteen and twenty would be better as the expense of instruction and laboratory equipment would be large.

Students in the regular second-year course would not find it possible to take this in addition to their regular work but might substitute it for a part of the same, after considering the matter with the Dean.

Although the second and third year courses of the long technical course are integral parts of the same the work has been planned so far as possible to allow of any man having sufficient knowledge, entering at any point as a regular student after satisfying the instructors of his capacity to carry on the work without hindrance to the other men; or as a special student for such particular parts of the work as he may desire. Thus he may take either the whole of the second-year work, or any one or more of the courses which appeal to him, and the same in the third year. The expense will be arranged in each individual case according to its particular nature.

METHOD OF WORK

The object of all the laboratory work of the Electrical School, is to have the student expand the knowledge he has received from the lectures and reading by learning through his finger tips; to have him absolutely handle the object under discussion: to adjust, measure, and test electrical machinery: to become familiar with dynamos, motors, electric wires, and in fact to get an intelligent conception of the entire problem from a practical standpoint. In addition to the foregoing, however, we aim to supply sufficient theory so that the student may know why certain things are done, enabling him thereby to become a skilful operator and one capable of growth and development.

RESULTS

Good work in this school depends, of course, first of all, upon the intelligence and application of the student. When a man is in earnest and attends regularly, he can acquire an intelligent conception and a working knowledge which has a direct and absolute commercial value. He will be head and shoulders above the inexperienced man who endeavors to enter these fields. He will be alert and active mentally, and sufficiently well trained so that he may, with the aid of good textbooks, follow along this line into the higher branches of the art.

CERTIFICATES

Upon the satisfactory completion of the Three-Year Course the student will be entitled to receive a diploma under the seal of the Association and signatures of its officers, as follows:

THE ASSOCIATION INSTITUTE
of the
BOSTON YOUNG MEN'S CHRISTIAN ASSOCIATION
hereby presents this certificate to

.....
in the

SCHOOL OF ELECTRICITY: THREE-YEAR COURSE
in testimony of his satisfactory completion of the general and special studies
required in said School for obtaining said Certificate, as scheduled upon the
back hereof.

Given under the seal of the Association at Boston, Mass., this.....day
of.....one thousand nine hundred and.....
.....President.....Educational Director.
.....General Secretary.....Dean.
.....School

"Satisfactory completion" means here the attaining of at least 75 per cent average throughout the course, first upon the quizzes and second upon the examinations in each course of lectures. The same average is necessary upon the worked-up results of the experiments in the laboratory courses, in which neatness, lucidity and promptness in work will be considered. Furthermore the several instructors must feel satisfied that the student has shown an intelligent grasp of the principles and such power of planning and working out of experimentation in the laboratory, which indicates a capacity for satisfactorily carrying through problems or other tasks set him in general outline by his employer.

Certificates have been presented in June, 1909, to the following students:

June 1909

Edwin A. Locke	Belmont.	<i>Cum Laude</i>
John Pearson	Melrose.	<i>Cum Laude</i>
Alfred R. Buzzelle	Cambridge	
Joseph H. Clapp	Dorchester	
Charles W. Leet	East Boston	
Rufus R. Moore	Roxbury	
Edward R. Sears	East Boston	
Ernest W. Trelawney	Auburndale	

June 1910

Hartin Selian	Dorchester	<i>Magna cum Laude</i>
Michael J. English	South Boston	<i>Cum Laude</i>
Walter F. Blaisdell	Somerville	
Charles W. C. Boundy	Cambridge	
Alfred J. Crockford	Malden	
Lyder C. Gullackson	Malden	
Louis S. Howland	So. Braintree	
Raymond Skinner	Arlington	

June, 1911

Frank Obata	Boston	<i>Magna cum Laude</i>
Edward S. Mills	Somerville	<i>Cum Laude</i>
Warren E. Denton	Quincy	
Albert G. Ilse	Allston	
Donald B. McKay	Boston	
Horatio D. Roberts	Boston	

ENTRANCE REQUIREMENTS

Any man of good moral character regardless of occupation, religious belief or age who, in the opinion of the Educational Director and Dean is sufficiently mature to carry on the technical work with advantage may enter the school.

TUITION FEES

One-Year Course

\$25 per year, payable as follows; \$15 upon entering; \$10 February 1.

Three-Year Course

First year, \$35, payable as follows: \$15 upon entering, \$10 December 1, and \$10 February 1.

Second and third years, \$50 each payable as follows: \$20 upon entering; \$15 December 1, and \$15 February 1.

Special Wiremen's Course

Eight dollars, or for members of the Association, \$3, but no extra

charge will be made to those students in the Electrical School for whom this is required work.

NOTE The above rates include an educational membership in the Association.

Should any person already a member of the Association desire to take but one or more of the scheduled second or third year courses he may do so for the sum of \$2.50 each, upon presenting evidence to the Dean of his ability to successfully and advantageously pursue the same. Persons not members have the same privilege upon taking out an educational membership.

The number that can be accommodated in this way is limited by the size of our lecture rooms and the number attending our regular classes.

Students who discontinue a course, but who have attended at least four or more recitations on the subject will be required to pay a term's tuition.

No student is permitted to transfer from one course to another without consulting the Dean beforehand and receiving a transfer order which must be presented at the main office for the proper ticket.

ADDITIONAL INFORMATION

Examinations are held at the close of each course and term.

Students who are obliged to be absent from any classes should notify the Dean in advance of same.

Scholarships

As an aid to worthy men who desire an education and are unable to pay in full even the slight charges, a limited number of scholarships has been provided, which will be judiciously distributed by the General Secretary, to whom application should be made.

Suburban Association Members

All tickets held by members of the Cambridge, Chelsea, Everett, Malden, Melrose, Newton, Quincy and Somerville Associations will be honored for social privileges in the Boston Association. Holders of such tickets are allowed credit of \$2.00 on either an educational or a gymnasium membership.

For information not contained in this catalogue, call upon or

address Frank P. Speare, Educational Director, 10 Ashburton Place, Boston. Telephone Haymarket 145, or W. Lincoln Smith, Dean, Concord, Mass., — telephone Concord 196.

DEPARTMENT OF PHYSICAL WORK

ALBERT E. GARLAND, M.D., B. P. E. Director

The Physical Department is under the best supervision and the aim is to better fit men for their life work by increasing their efficiency through exercise. The Gymnasium Ticket (\$10.00 annually) includes all the privileges of the regular and educational tickets and the use of two good gymnasiums: M. I. T. Gymnasium, Garrison Street, and the Y. M. C. A. Gymnasium, 8 Ashburton Place. Numerous classes the year round. Shower, steam and electric baths. Best instruction. Medical direction. Hand ball courts. Basket ball, baseball and athletics.

DEPARTMENT OF RELIGIOUS WORK

EDWIN W. PEIRCE, Director

Although mental training makes a young man keen, and physical exercise agile and strong; yet, without the additional moral and spiritual development secured through knowledge of the principals of life laid down by the Great Teacher and striving to make them his own, his career may be a complete failure.

The Association, therefore, advises each member in planning his winter schedule to arrange to take advantage of one or more of the following special features:—

Bible Study, Sunday Meeting of Men, Personal Service Groups, and The Twenty-Four-Hour-A-Day Club.

(Ask for Bible Institute catalog and other printed matter.)

DEPARTMENT OF SOCIAL WORK

DAVID M. CLAGHORN, Director

The attention of members is called to the many opportunities in the Association for social service, and the following features among others:

A Newly Equipped Game Room	The Popular Novel Club
The Association Congress	The Land and Water Club

DEPARTMENT OF EMPLOYMENT

FREDERICK W. ROBINSON, Director

The Employment Department is, in actual practice, a clearing house for young men seeking work, and employers who wish to engage reliable help. From 5000 to 8000 men apply every year. Members of the Association are given 25% discount from the legal rates and special effort is made to notify them when good positions are open.

BOYS' DIVISION
DON S. GATES, City Sec'y

The physical, social, employment, and religious advantages offered to boys from twelve to eighteen years, are similar to those offered to men as stated above. Membership dues for the boys range from one to six dollars according to the privileges desired. Boys' work is also organized in Roxbury.





CLASS OF 1910

A S S O C I A T I O N I N S T I T U T E

Boston Young Men's Christian Association

ANNOUNCEMENT

OF THE

EVENING LAW SCHOOL

FOURTEENTH YEAR

1911-12



BOSTON, MASSACHUSETTS

Published by the Young Men's Christian Association

1911

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A School of many departments, training students in Engineering and Applied Science. Much of this work is of technical school grade.

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Offers one and three years' courses in Applied Electricity and Engineering. Well-equipped shops and laboratories.

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Deals with the construction, care and operation of all types of gasoline vehicles; a large staff of teachers; ample equipment and garage. NEW BUILDING.

WINTHROP C. HOSFORD, Dean

For further information concerning any of the above schools or departments, address the Educational Director,

FRANK PALMER SPEARE, 10 Ashburton Place, Boston, Mass.

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✓ OSCAR STORER, A.B., LL.B.	{ Sales
✓ CHANDLER MASON WOOD, A.M., J.M.	{ Mass. Practice
✓ SYDNEY RUSSELL WRIGHTINGTON, A.B., LL.B.	{ Bankruptcy
✓ CORRIE ELLSWORTH BRIDGES, LL.M.	{ Torts
	{ Evidence
	Common Law Pleading
	Partnership
	Counsellor
GALEN DAVID LIGHT, A.B.	Secretary and Bursar
OLIVER T. NOON, S.B.	Assistant Bursar
CHARLES B. GRAY	Office Secretary
KATHERINE M. VINTON	Recording Secretary

CALENDAR

1911

August 28-September 2.	Condition Examinations
September 13-16.	Registration
September 18 (Monday).	Lectures Begin
December 16-30.	Christmas Recess

1912

April 19 (Friday)	Patriots' Day, Holiday
June 16 (Sunday).	Baccalaureate Address
June 19 (Wednesday).	Commencement Exercises

HISTORICAL REVIEW

Object. The object of the Evening Law School of the Boston Young Men's Christian Association is to provide employed men, unable to attend day law schools, the best possible equivalent. Its aim is to supplement the work of other schools in this manner, and the relations are those of mutual helpfulness.

Establishment. The Evening Law School was established in the fall of 1898 in response to an evident demand for such an institution. Before undertaking the work the co-operation was secured of the Hon. James R. Dunbar, the late Prof. James Barr Ames, Dean of the Harvard Law School, and Mr. Samuel C. Bennett, then Dean of the Boston University Law School. Under the direction of this board of advisors the School was organized.

Successful career. Being thus auspiciously inaugurated, the first evening law school of Massachusetts entered upon what proved to be a most successful career. Eighteen hundred and forty-four students have been enrolled, including clerks from the offices of leading attorneys; clerks and officers from every court in Boston; state, city, and government officials; teachers; and students from other law schools, in addition to a large number of able men engaged in different lines of business.

Incorporation. In January, 1904, a bill was introduced into the Massachusetts Legislature seeking the incorporation of the School with the power to grant the degree of Bachelor of Laws. The passage of this bill by the Legislature and the cordial recognition and endorsement of the School by the Bench, Bar and heads of our great professional schools, testify in no uncertain tones to the position the School occupies in the educational activities of the Commonwealth.

High Standards. The work of the past has been characterized by strict and impartial administration, expert instruction, and devotion on the part of the students. The success of the graduates in passing the Bar Examination, and later in practice, has amply justified what may at times have seemed to be undue severity.

If passing the Bar Examination were the only end to be attained the work would be less difficult; but reputable institutions concern themselves much more with the future prospects of their students than

with the fitting of any number of men for certain tests; and to this end the courses as herein announced were arranged to duplicate as nearly as possible those of the university law schools.

The study of law requires diligent application and regular attendance upon the lectures and other exercises of the School; also a large amount of reading and thought in order to comprehend clearly and to assimilate properly the many difficult problems presented. A successful lawyer must have not only a thorough knowledge of the law, but the power to apply that knowledge in each particular case, no matter how complicated the conditions may be; and it is this latter phase of the profession's requirements that makes the cramming process or hasty preparation of no value to one who hopes to be successful in active practice; for though he may in this way gain admission to the Bar, he will be incompetent to give counsel worthy the name.

A four-years' course is required, as it is impossible to cover thoroughly in an evening school the different branches of the law in any less time. Harvard and Boston University Law Schools schedule three years of study, with the student's full time employed; it is, therefore, a fallacy for any evening school or individual to claim to be able to fit men properly in a shorter period, especially when otherwise occupied during the day.

Private Tutoring and Home Study. The great advantage of regular school work, day or evening, over private tutoring, study in a law office or by correspondence, must be apparent to all; while in these ways students may succeed in passing the Bar Examination, they have missed entirely the helpful influence of several instructors and the benefit of frequent discussions with other students who entertain different views on the cases studied; and also, what is most important, that great aid in any line of activity, the enthusiasm of a number of earnest men having the same objective point. Discussion, argument, stating cases and commenting thereon, are features which, in connection with the regular lectures, recitations, quizzes, and examinations, constitute a law course and give the student proper training. Deprived of all these very essential features, the private student may pass the Bar Examination and yet be very unfit to practice law.

CLASS OF 1910

On June 15, 1910, the following men received the degree of Bachelor of Laws:

Walter Pennington Abell	William Everett Howe
William Anteliffe Bellamy	Guy Atwood Jackson
John Bianchi	George Marshall Jewell
Lyman Warren Brooks	Louis Agassiz Jones
William Herbert Burke	Wilbur Aaron Jordan, Jr.
Ralph Norman Butterworth	Maurice Kronick
James William Byron	Henry Lawrin
John Bernard Canfield	Harold Wesley Loker
George Henry Carrick	Herman Albin MacDonald
James Thomas Carter	James Preston Mackin
Fred William Cousins	Patrick Joseph Madigan
Adolph Isaac Danner	Frederick Huntley Magison
Shirly Howe Eldridge	Augustin Vincent Murphy
William Caleb Frye	Alexander William Murray
Clarence Jesse Funnell	Albert Leslie Partridge
Walter Howard Gleason	William John Pike
Ralph Clifton Glidden	Peter Ratzkoff
Jos. Julian Orphee Gingras	Arthur Bickford Rigney
Thomas Max Gurin	Allan Robinson
Frank Howard Hallett	Elmer Ernest Spear
John Emmett Hanlon	James William Spicer
Thomas Aloysius Henry	James William Sweeney
William Martin Henry	Israel Mark Ullian
Jeremiah George Herlihy	Robert Comey Van Amringe
Ralph Eugene Hiland	John Joseph Ward
George Preston Hitchcock	Maynard Addison Wood
Jesse Allen Holton	Frank Hubert Wright

REQUIREMENTS FOR ADMISSION

All applicants for admission to the School must present satisfactory evidence of good moral character, and must be at least eighteen years of age for admission to the work of the first-year class at its formation, and of a corresponding increase of age for admission to advanced standing.

Graduates of colleges, scientific and four-year courses in high schools of good standing are admitted without examination upon presentation of a certificate or diploma. Applicants who have had a partial course in a good high school will be credited with work done but will be held for examinations in the following subjects: English, English and American History, Algebra and Latin or French. The dates of the examinations will be announced later.

To those unable to enter the Law School by reason of insufficient preliminary training, we recommend courses in the Association Preparatory School, a fully equipped and highly organized high school with day and evening sessions during the summer and winter, which prepares students for Harvard College, the Massachusetts Institute of Technology, and other colleges, as well as the Harvard, Boston University, and Association Law Schools. The time required is less than in other good high schools and the work thorough. Our certificate of graduation will be accepted by the Bar Examiners as evidence of high school preparation.

Advanced Standing. Candidates for admission with advanced standing, will file their applications and credentials regarding previous study of law with the Dean.

Students from other law schools, applying as above, will be required to present a letter from the Deans of said schools regarding their standing and general work.

Special students will be admitted to the Law School under certain conditions at the discretion of the Dean.

SPECIAL NOTICE. Owing to the delay each year on the part of the students and the consequent rush on the opening night, those desiring admission are requested to register during the two weeks previous to the opening of the School.

For application blanks for admission to the School, or for further information, address the Secretary of the Law School, 10 Ashburton Place, Boston.

REQUIREMENTS FOR THE DEGREE

The requirements for the degree of Bachelor of Laws in point of age, period of attendance at the School, and the passing of examinations, are as follows:

At the time of receiving the degree one must have attained the age of twenty-one years.

The required period of attendance at the School is four years. One or two years' attendance at a three-year law school may be counted as a part of the four years, but all of the examinations of the four years must be passed.

To receive the degree of Bachelor of Laws it is necessary to pass satisfactory examinations in the entire course of four years, special students being required to obtain a mark of seventy-five per cent. Students who pass these examinations with distinguished excellence will receive the degree of Bachelor of Laws, *cum laude*.

The right to take examinations, as well as the privilege of continuing one's membership in the School at any time, is conditioned upon regular attendance at the exercises of the School. Attendance at 75 per cent. of the lectures in each course is required. Those failing to attend said 75 per cent. will lose 10 per cent. from their rating in such subjects.

All examinations must be taken at the time scheduled, and no student is allowed to present himself for examination more than once in the same subject, provided he passes at the first trial. If, for good and sufficient reason, a student finds that he will be unable to take an examination at the time scheduled, he must previously obtain permission from the Dean to take said examination at the second trial.

No student who has more than one condition standing against him on the work of the first two years will be allowed to register as a third-year student, and no student having any condition will be admitted to the fourth year. He may, however, although registered as a third-year student, take and be credited with a limited number of fourth-year subjects, the number varying according to the number of his conditions.

No student who fails on account of conditions to receive his degree in due course will be permitted, except by special vote of the Faculty, to remove his conditions later than two years after the graduation of his regular class.

Every person who while a member of the School passes a

satisfactory examination in one or more subjects will be entitled to a certificate, stating the length of time he has been a member of the School, and specifying the subjects in which he has passed examinations, but no undergraduate will be given letters of endorsement to the Board of Bar Examiners.

ACADEMIC PREPARATION FOR BAR EXAMINATIONS

The following is a copy of the recent ruling of the Board of Bar Examiners of Massachusetts relative to the academic preparation of applicants:

A

GENERAL EDUCATION

(Established March 28, 1911)

An applicant should have at least a high school education or its equivalent.

After February 1, 1914, an applicant must show by certificate or certificates that he, —

- (a) Is a graduate of a college, or has passed the entrance examinations of a college, or of the College Entrance Examination Board, or examinations substantially equivalent thereto; or has complied with the entrance requirements of a college or
- (b) Is a graduate of a day high school, or of a school of equal grade; or
- (c) Has passed the examinations given for admission to the state normal schools of Massachusetts in the following subjects: —

- I. Language.—English, with its grammar and literature.
- II. United States History.—The history and civil governments of Massachusetts and the United States, with related geography and so much of English history as is directly contributory to a knowledge of United States history.
- III. (a) Latin or
(b). French
- IV. (a). Algebra or

(b) Plane Geometry

V. Any two of the following:—

- (a) Physiology and Hygiene
- (b) Physics
- (c) Chemistry
- (d) Botany
- (e) Physical Geography

[The above rule, VII, A, was established by the board of bar examiners March 18, 1911, and was approved by the Supreme Judicial Court March 28, 1911.]

B

LEGAL EDUCATION

(Established January 3, 1910)

Applicants must have knowledge of the general principles of the common law and of the more important provisions of our statutes.

Examinations in law shall consist of printed questions to be answered in writing, based upon the following subjects or some portion thereof:—

Contracts	Negotiable Instruments
Torts	Bailments
Real Property	Carriers
Criminal Law	Wills
Evidence	Probate Law
Equity	Domestic Relations
Corporations	Trusts
Partnership	Pleading
Mortgages	Practice
Suretyship	Constitutional Law
Agency	Bankruptcy
Sales	Legal Ethics

[The above rule, VII, B, was established by the board of bar examiners November 27, 1909, and was approved by the Supreme Judicial Court January 3, 1910.]

PREPARATORY COURSES FOR CANDIDATES FOR THE BAR EXAMINATIONS

For Men who have not had a High School Course

Those who desire to take the Massachusetts Bar examinations but who are not graduates of high schools, may meet the requirements as recently made by the Board of Bar Examiners, by taking the courses in our Preparatory School during the summer or winter sessions day or evening.

For Men who have had a Partial High School Course

Applicants who have had a partial course in a high school will be given credit for those subjects passed successfully, and for which certificates are presented. If they are unable to furnish certificates of the work done, they will be examined by the Dean of the Preparatory School, and thereby receive credit for the courses passed successfully. The Dean will then prescribe only such courses as are necessary to complete the regular work to receive a diploma from our Preparatory School.

For those who wish to pass the Normal School Examinations

The Association Institute is prepared to give the entrance examinations to the Massachusetts normal schools, to those who are not students in our school, but who wish to pass them in order to be able to qualify for the Bar examinations.

It will be noticed from the above statement that our Preparatory School is in a position to enable men to fully meet the requirements of the Bar Examiners, granted, of course, that they do the work prescribed in a satisfactory manner.

FOUR OPTIONS

Men entering the Evening Law School of the Boston Young Men's Christian Association, who find it necessary under this new ruling to take preparatory school work are given four options:

1. The Preparatory School may be attended before attending the Evening Law School.
2. The Preparatory School may be attended during the winter months while attending the Law School. This plan necessitates

attending six nights per week, three in each school, or partial work in the Law School and as much preparatory work in addition as a student can carry.

3. A student, if a member of the Law School, may attend the summer sessions of Preparatory School for as many terms as may be necessary, and thus meet the requirements.

4. The student, if a member of the Law School, may drop out for a year or as long as necessary, complete the preparatory work, re-enter the Law School and finish the course.

PROGRAM OF INSTRUCTION

FIRST YEAR

<i>Torts</i>	Mr. Storer. Monday, throughout the year, 7.30-9.00
<i>Criminal Law</i>	Mr. Ballantine. Wednesday, first half-year, 7.30-9.00
<i>Agency</i>	Mr. Brown. Wednesday, second half-year, 7.30-9.00
<i>Contracts</i>	Mr. McLellan. Friday, throughout the year, 7.30-9.00

SECOND YEAR

<i>Property I</i>	Mr. McLellan. Monday, throughout the year, 7.30-9.00
<i>Bills and Notes</i>	Mr. Parke. Wednesday, first half-year, 7.30-9.00
<i>Sales</i>	Mr. Parke. Wednesday, second half-year, 7.30-9.00
<i>Equity I</i>	Mr. Barney. Friday, throughout the year, 7.30-9.00

THIRD YEAR

<i>Equity II</i>	Mr. Hutchinson. Monday, throughout the year, 7.30-9.00
<i>Corporations</i>	Mr. Newton. Wednesday, throughout the year, 7.00-8.15
<i>Pleading</i>	Mr. Wood. Wednesday, first half-year, 8.15-9.30
<i>Special Course</i>	Mr. Newhall and Mr. Dorman. Wednesday, second half year, 8.15-9.30
<i>Property II</i>	Mr. Newton. Friday, throughout the year, 7.30-9.00

FOURTH YEAR

<i>Bankruptcy</i>	Mr. Ruby. Monday, first half-year, 7.00-8.15
<i>Mass. Practice</i>	Mr. Ruby. Monday, second half-year, 7.00-8.15
<i>Partnership</i>	Mr. Wrightington. Monday, first half-year, 8.15-9.30
<i>Court Practice</i>	Mr. Lummus. Monday, second half-year, 8.15-9.30
<i>Evidence</i>	Mr. Storer. Wednesday, throughout the year, 7.30-9.00
<i>Constitutional Law</i>	Mr. Dorman. Friday, first half-year, 7.30-9.00
<i>Property III</i>	Mr. Newhall. Friday, second half-year, 7.30-9.00

OUTLINE OF COURSES FOR THE DEGREE OF LL.B.

FIRST YEAR

Agency

Nature of the relation, its creation and termination; duties, rights and liabilities of principal and agent *inter se* and as regards third

persons; the doctrine of undisclosed principal; and of ratification.

Wambaugh's Cases on Agency.

Contracts

Offer and acceptance; consideration: performance of, or promise to perform non-contract obligation as consideration; moral obligation as consideration; antecedent act or agreement as consideration; parties to a contract, including aliens, executors and administrators, guardians, infants, insane persons, intoxicated persons and married women; omitting agents, corporations and partners on account of these subjects being given in other courses; contracts under seal, including the form requisites thereof, delivery and the matter of consideration for contracts under seal; rights of beneficiaries under a contract; rights of assignees of a contract; conditional and unconditional contracts; rescission of contracts; damages for breach of contract.

Keener's Cases on Contracts.

Criminal Law

Sources of criminal law; nature of crime; common law and statutory offences; criminal acts; intent in general, and as affected by circumstances, such as insanity, intoxication, infancy, coercion, ignorance or mistake; justification; necessity; agency; consent; condonation; contributory acts; domestic relations; parties in crime; jurisdiction.

Crimes against the person; against property; against public policy; health; peace; justice; decency and morality.

Criminal procedure; arrest; extradition; examination and bail; indictment and criminal pleading; trial; evidence; proceedings after verdict; error.

Beale's Cases on Criminal Law.

Beale's Criminal Procedure.

Torts

General principles; assault and battery; false imprisonment; trespass; conversion; slander and libel; enticement and seduction; deceit; slander of title; malicious prosecution; negligence; and incidental points.

Bigelow on Torts.

Ames' and Smith's Cases on Torts.

Chase's Cases on Torts.

Simpson's Cases on the Law of Torts.

SECOND YEAR

Bills and Notes

The provisions of Revised Laws of Massachusetts, Chapter 73 (Negotiable Instruments Law). Formal requisites of negotiable and non-negotiable bills of exchange, checks and notes; obligations and rights of the various parties to such instruments, makers, acceptors, drawers, drawees, payees, indorsers and endorseees; suits upon bills and notes; pleading and defences; accommodation paper; guaranty; and generally of the transfer, indorsement and extinguishment of bills and notes.

Revised Laws of Massachusetts, Chapter 73.

Huffman on Negotiable Instruments.

Norton on Bills and Notes, Third Edition.

Equity I

Nature and limits of jurisdiction; the jury in equity; equitable parties; the maxims; conversion; accident, mistake and fraud; accounting, subrogation and other pecuniary remedies; specific performance of affirmative and negative contracts, including part performance, partial performance with compensation, defenses; specific reparation and prevention of torts by injunction, including particularly jurisdiction in waste, trespass, nuisance and in industrial disputes.

Ames' Cases on Equity Jurisdiction, Vol. I, Parts 1-6.

Property I

Distinction between real and personal property; nature and acquisition of rights and personal property; acquisition of rights not under former owner; transfer of rights in personal property; possession of personal property; tenure in general; division of estates, seizen and conveyance uses and trusts; mines; wild animals; border trees; emblem; fixtures, waste; rights in another's land; natural rights; easements; covenants running with the land; public rights; franchises; rents.

Gray's Cases on Property, Vol. I and II (Second Edition).

Sales

The provisions of the Sales Act, Acts of 1908, Massachusetts, Chapter 237, codifying the Massachusetts law of sales of personal property. Sales and mortgages of personal property; subject matter of sales; when title passes; risk of loss; rights and remedies of seller and buyer in executed, executory and conditional contracts of sale; warranties of title and quality; seller's lien and stoppage *in transitu*; bills of lading and other documents of title; fraud; statute of frauds; factors and recording acts; actions and defences.

Massachusetts, Acts of 1908, Chapter 237.

Benjamin on Sales, 7th American Edition.

Tiffany on Sales, Second Edition.

Williston on Sales, 1909 Edition.

THIRD YEAR

Corporations

Nature of a corporation; difference between corporation and partnership; distinction between stockholders and corporation; promotion of corporations; formation of corporations; corporations *de jure*; corporation *de facto*; dissolution of corporations; interpretation of charters; powers of a corporation; doctrine of *ultra vires*; liability for torts and crimes; corporation and the State; shares of stock, dividends; rights of stockholders; stockholders' liabilities; foreign corporations; voting rights of stock-holders; voting trusts; rights and liabilities of directors and officers; rights and remedies of creditors against property of corporations.

Smith's Cases on Private Corporations.

Equity II

(a) The principal part of this course covers the subject of private trusts as treated in Ames' Cases on Trusts and deals with the following topics: the nature and requisites of a trust; the nature of the *cestui que* trust interest; the transfer of trust property; the extinguishment of a trust; the duties of a trustee.

(b) In addition to the above this course will also include some lectures upon mortgages and upon Equity Pleading and Practise.

Ames' Cases on Trusts.

Pleading

Common law pleading; common law actions; pleadings: their history, form and effect; the rules of pleading.

Ames' Cases on Common Law Pleading.

Perry on Pleading.

Property II

Acquisition of real property, *inter vivos*; original acquisition; lapse of time; statute of limitations; prescriptions; form of conveyance; description of property granted; boundaries; estates created; incorporeal hereditaments; covenants for title; execution of deeds; signing and sealing; delivery; estoppel; dedication.

Kinds of wills; testamentary power; beneficiaries; property given; who may make a will; contract to make a will; form of will; incorporation of outside documents; signing; witnesses; publication; mistake; fraud; undue influence; revocation; re-publication; grant of probate and administration; the estate of an executor or administrator; alienation of administrators and executors' legacies; distribution; construction.

Gray's Cases on Property, Vol. III and IV (Second Edition).

Chaplin's Cases on Wills.

FOURTH YEAR

Bankruptcy and Statutory Law

Several lectures on important Massachusetts statutes, including the Business Corporation Law and the Employer's Liability Act. Most of the time in the course, however, will be given to the law of bankruptcy, particularly under the Bankruptcy Act of 1898 and amendments. Cases illustrating the general principles of bankruptcy law and the more important sections of this act, will be discussed.

Williston's Cases on Bankruptcy.

Constitutional Law

Written and unwritten constitutions; history and sources of written constitutions in the United States, state and national; establishing and amending constitutions; distribution of powers between the national and state governments; distribution of powers among the three departments; theory and consequences of this distribution; the

judicial department; nature of judicial power; power of the courts to declare void an act of the legislature or of the executive; jurisdiction of the federal government, criminal and civil; express, implied and resulting powers; citizenship; civil and political rights; the police power; the right of eminent domain; taxation; impairment of contracts, *ex post facto* and retrospective legislation generally; regulation of commerce.

Thayer's Cases on Constitutional Law.

Cooley's Principles of Constitutional Law.

McClain's Cases on Constitutional Law.

Boyd's Cases on Constitutional Law.

Court Practice

Several lectures on Court Practice and Procedure are given each year to the Senior Class by Judge Henry T. Lummus. These lectures are of extreme value to those about to enter practice.

Evidence

Judicial notice; judge and jury, or law and fact; burden of proof; presumptions; admissions; confession; principles of exclusion; relevancy; character evidence; hearsay evidence and exceptions thereto, including declarations as to matters of pedigree, matters of public interest, public records, declarations in regular course of business, account-books, declarations against interest, *res gestae*, dying declarations, declarations made under oath, declarations showing physical or mental conditions; opinion evidence; best evidence; writings as evidence; examination of witnesses.

Greenleaf on Evidence.

McKelvey on Evidence.

Thayer's Cases on Evidence.

Wilgus' Cases on Evidence.

Massachusetts Practice

Jurisdiction of the courts and venue of actions, method of bringing suit, including attachment and service of process; pleading under the Massachusetts Statute; obtaining judgment and satisfaction of execution; exceptions and appeals. Also some discussion of Massachusetts probate and divorce law.

Buswell and Walcott on Massachusetts Practice.

Partnership

The creation of a partnership; *quasi* or nominal partners; the partnership property and the interest of a partner therein; rights and remedies of creditors; the power of a partner to act in behalf of the partnership, before and after dissolution; rights and duties between partners *inter se* and actions between partners; dissolution and termination of partnership; accounting and distribution.

Ames' Cases on Partnership.

George on Partnership.

Lindley on Partnership.

Property III

Conditional and future interests in real and personal property, including conditional estates, reversions and remainders, rule in Shelley's Case, and rule against perpetuities; forfeiture and restraints on alienation.

Gray's Cases on Property, Vol. V and VI.

Gray's Rule against Perpetuities.

Gray's Restraints on the Alienation of Property.

SPECIAL COURSE

A special course in selected topics covering a period of sixteen weeks, will be given by Mr. Newhall and Mr. Derman. This course will include the following subjects :

SETTLEMENT OF ESTATES, including the winding up of the estates of descendants in the Probate Court, and a brief presentation of the management of trust properties.

JOINT OWNERSHIP.

RECORDING AND REGISTRATION, including the scope and effect of the Recording Acts in Massachusetts, with especial reference to conveyancing and real property.

CARRIERS.

SURETYSHIP, comprising the rights and obligations subsisting among the three parties involved in a suretyship transaction ; namely, — principal obligor, surety and obligee.

METHOD OF INSTRUCTION

Owing to the fact that the greater part of our students are engaged

at their various occupations through the day, the lectures are held in the evening. These lectures are sufficiently comprehensive to enable those limited for time to pursue the course with profit. Each instructor regularly assigns cases bearing upon the subject in hand to be reported upon and discussed in class. Students are taught also to draft legal papers. The members of the faculty are all practicing attorneys, several of whom are also instructors in the leading law schools.

QUIZZES

In addition to the formal lectures of the first and second years the students meet twice weekly throughout the year for a systematic review of the material covered by the regular lecturers. These "quizzes" are conducted by an experienced instructor.

Students are also encouraged to form quiz clubs among themselves, since in law, as in other branches of knowledge, discussion develops mental power.

SUPPLEMENTARY LECTURES

We plan to offer each year a series of special lectures by leading members of the Bar. These lectures are arranged to present subjects not included in the regular program. Admission is free to all who are or have been identified with the School. Members of the Suffolk Bar and Harvard and Boston University Law Schools are also welcome.

LECTURERS AND SUBJECTS

The following is a list of the lecturers and their subjects during past years:

Homer Albers	Trade-marks
Hon. Charles Almy	District Courts
Walter I. Badger	Argument to the Jury
Hollis R. Bailey	Bar Examinations
Josiah H. Benton, Jr.	Railroad Law
Louis D. Brandeis	{ Railroad Corporations The Practice of Law
Everett W. Burdett	Street Railway Corporations
James R. Carret	Conveyancing
Eugene P. Carver	Law of the Sea
Hon. Charles T. Davis	Land Registration
Hon. David T. Dickinson	Equitable Remedies
Samuel J. Elder	Copyrights

Eugene Fellner	Employers' Liability
William T. A. Fitzgerald	How to Look up a Title
Arthur D. Hill	Office and Duties of the District Attorney
Carleton Hunneman	Probate Law
Henry F. Hurlburt	{ Examination of Witnesses
	{ Office and Duties of the U. S. District Atty.
Prof. Theodore P. Ion	International Law
John D. McLaughlin	History of Criminal Law
Robert M. Morse	Practice in the Courts
Hon. James J. Myers	The Young Attorney's Relation to the State
Frank N. Nay	Preparation of Cases
James M. Olmstead	Bankruptcy
Herbert Parker	Legal Ethics
Joseph C. Pelletier	Criminal Procedure
Gilbert A. A. Pevey	Municipal Corporations
Hon. William Schofield	Trial by Jury
Hon. Moorfield Storey	The Beginning of Practice
George B. Upham	Corporation Law
Joseph B. Warner	Preparation of a Brief
Sherman L. Whipple	Suggestions to Young Practitioners

LIBRARIES

The Association Law Library numbers some twelve hundred volumes and is rapidly growing. It contains the reports of all decisions of the Supreme Court of the United States, the English Reports, two sets of Massachusetts Reports; the Public Statutes, Revised Laws, and Acts and Resolves of Massachusetts; a complete set of the New York Court of Appeals Reports; the usual dictionaries, digests, commentaries, and law journals, and a collection of text and case books cited by the instructors, in many cases several copies. The law Library is accessible to all members of the School and is open daily from 9 A.M. to 10 P.M., Sundays excepted.

Students also have access to the Law Library and Reading Room of the Boston Public Library. By special arrangement with the Trustees, the privilege of using and drawing books from the Boston Public Library has been extended to non-resident students of the Association Institute.

EXAMINATIONS

Examinations are regularly held during the months of February and May, and students are examined but once in each course. Those

failing to pass these examinations, also applicants for advanced standing, are required to present themselves for examination in September. The examination schedule for September, 1911, is as follows:

CONDITION EXAMINATIONS, 1911

Monday, August 28.	Criminal Law, Property I, Corporations.
Tuesday, August 29.	Torts, Equity I, Property II (Deeds.)
Wednesday, August 30.	Agency, Common Law Pleading.
Thursday, August 31.	Contracts, Bills and Notes, Equity II.
Friday, September 1.	Sales, Property II (Wills).

Examinations must be taken at the time scheduled, as no special examinations will be given.

TUITION

The rate of tuition is \$75 per year, payable \$25 on entrance, \$25 on December 1, and \$25 on February 1. This fee includes all privileges of the Association except the use of the gymnasium; including gymnasium, \$5 additional. Candidates for the degree are assessed \$5 as a graduation fee.

Single subjects when authorized, will be charged for at the rate of \$25 for eight, and \$15 for four months' courses, not including membership in the Association.

TEXT-BOOKS

Text or case books are required in many of the courses. These books may be purchased by the student, or, if convenient, the books of the Association Library may be used in the building. It is found advantageous for a student to own the books in order that he may better employ his hours at home. Law books are not sold by the Association, but lists are suggested by the several instructors. Cost of text-books \$15-\$20 per year.

Note books and general supplies may be obtained at the Association office at reasonable rates.

PURCHASE AND SALE OF NOTES

Students are expected to take notes of all lectures in person and to be prepared to hand in their note books for examination when called

for. The purchase and sale of notes is absolutely prohibited, unless authorized in writing by the Dean.

HELPFUL FEATURES

The Young Men's Congress of the Association, an organization of much seriousness of purpose, is open to the members of the Law School, and will be found a helpful agency in training for debate. The value of this cannot be overestimated.

The Gymnasium. For most men to add the strain of evening school work to the duties of the day requires not only a great deal of time and self-denial, but also unusual demands upon their vitality. Some counteracting influence is greatly needed to keep the student at his best and enable him to get all out of the course that is possible. An experience of many years has shown that regular physical exercise, however brief, followed by an exhilarating shower bath, tones up the system and keeps one in fine condition. We are particularly fortunate in having in our building the best conducted gymnasium in Boston, and our students are urged to investigate its work and what it is doing for hundreds of students in this and other professional schools.

Facilities. The Association building is centrally located and is well equipped. It is easily reached from railroad stations, so that suburban students can readily attend the School, and the hours of class work make it possible for those dependent upon trains to leave in season.

Boarding places will be suggested, upon application, to those who desire to locate in town permanently, or simply to remain over night when attending the School.

GRADUATES

The following men have been granted the degree of LL.B. in previous years:

Name	Residence	Admitted to the Mass. Bar
Walter Pennington Abell	Roslindale	1910
Thomas Donald Adair	Roxbury	1909
George Pomeroy Anderson	Boston	1909

Henry Nathaniel Andrews	Boston	1909
Henry James Angell	Los Angeles, Cal.	
Arthur Wykeham Ashenden	Dorchester	1909
John Joseph Attridge	Boston	1906
William Brooks Baker	Danvers	1910
William Henry Barter	Dorchester	1907
Charles Henry Bartlett	Boston	1901
William Williams Bartlet	Roxbury	
Sanford Bates	Dorchester	1906
Benjamin Franklin Beale	Boston	
*Charles Currier Beale	West Medford	1907
Rosecoe Hosmer Belknap	Framingham	
William Anteliffe Bellamy	Taunton	1910
Edward Sherman Bennett	South Boston	1908
Gilbert Bezanger	Winthrop	1909
John Bianchi	Newtonville	1910
Thomas Herbert Bilodeau	Boston	1909
Grosvenor Tarbell Blood	Newburyport	1904
Francis Henry Blackwell	Boston	1907
Robert Ross Thompson Bower	Boston	1903
Joseph Thomas Brennan	Cambridge	1904
Thomas Francis Brennan	Cambridge	1908
Corril Ellsworth Bridges	Charlestown	1902
Philip Anthony Brine	Somerville	1906
Lyman Warren Brooks	Watertown	1911
Dennis Francis Buckley	Georgetown	1903
Timothy John Buckley	Charlestown	1902
William Herbert Burke	Worcester	
Ralph Norman Butterworth	Revere	1909
James William Byron	Concord	1910
Robert Campbell	Boston	1908
John Bernard Canfield	Newton	1910
Michael John Carey	Somerville	1908
Dennis Francis Carpenter	Dorchester	
George Henry Carrick	Cambridge	1910
Frederic Carroll	London, England	1904
James Edward Carroll	Boston	1907
James Thomas Carter	Dorchester	1911
Henry Elton Chamberlin	Boston	
Walter Watson Chambers	East Dedham	1906
Henry Victor Charbonneau	Lowell	1909
Alfred Pugh Clark	Allston	1904
John Joseph Coady	Dorchester	1906

John Henry Coakley	Chelsea	1903
Timothy Francis Collins	Arlington	1902
Charles Alfred Colton	Winthrop	1909
Arthur Lester Connolly	Boston	1903
Charles Carthage Connor	New Bedford	1904
William Francis Connor	Waltham	1906
Edwin Horace Cooley	Brookline	1903
Fred William Cousins	Medford	1910
John McLean Crawford	Charlestown	1905
Francis Aloysius Cronin	Roxbury	
John Cornelius Cronin	South Boston	1906
Daniel Francis Cunningham	Brighton	1907
Maurice Francis Cunningham	Clifftondale	1907
Daniel John Daley	Brookline	1907
William John Daly	Winchester	1907
Henry Wesley Davies	Ballardvale	1908
Samuel Davis	Boston	1907
John Bernard Dayton	Somerville	1908
Michael John Dennen	Winchester	1907
John Henry Devine	Brighton	1907
Adolph Isaac Dinner	Roxbury	1910
James William Dolan	Waltham	1904
Peter Jefferson Donaghue	Dorchester	1904
Patrick Joseph Dowd	Waltham	1906
Michael Joseph Doyle	Boston	1906
James Michael Driscoll	Brookline	1907
John Francis Dunn	Dorchester	1907
Albert Cooledge Eames	Boston	1908
Ernest Doane Easton	Providence	
Shirley Howe Eldridge	Waltham	
John Henry Ells	Dorchester	1904
Chester Everett	Boston	1909
David William Everett	Boston	1909
Andrew Franklin Faden	Jamaica Plain	
Michael Laurence Fahey	Charlestown	1904
James Edward Farrell	West Newton	1908
Horace Porter Farnham	Peabody	1905
Charles Augustus Ferguson	Malden	1909
Edward Ferguson	Cambridge	1909
John Mix Finch	Everett	
Thomas Jefferson Fitz	Melrose Highlands	
Edward Richard Flavell	Boston	
John Gregory Fortune	Malden	

Walter Frank Foss	Norwood	
Isidor Fox	Revere	1903
Morris Burton Frankel	Boston	1905
Harry LeRoy French	Waltham	1907
William Philip French	West Somerville	1908
William Caleb Frye	Winthrop	1910
Clarence Jesse Funnell	Boston	1909
Frederick Alfred Gaskins	Milton	1903
Carl Gerstein	Boston	1904
Martin Gilbert	Roxbury	1908
Jos. Julian Orphee Gingras	Lynn	
Wallace Alfred Gleason	West Roxbury	1908
Walter Howard Gleason	Watertown	1910
Ralph Clifton Glidden	Reading	1910
Isaac Gordon	Boston	1905
Walter William Graves	Salem	1902
Hamlet Samuel Greenwood	Lowell	1906
William John Greene	Cambridge	1902
Mederic Guilbault	Medford	1908
Thomas Max Gurin	Boston	
August George Gutheim	Washington, D. C.	1904
Dennis William Haggerty	Boston	1907
Frank Howard Hallett	Dorchester	1910
Reginald Hainsworth	Cambridge	1903
John Hamilton, Jr.	Jamaica Plain	1907
John Emmet Hanlon	Dorchester	1910
Edward Warren Harnden	Boston	1906
John Michael Hayes	Dorchester	1906
Michael Aloysius Henebery	Worcester	1908
Thomas Aloysius Henry	Salem	1910
William Martin Henry	Salem	1910
Daniel Melbourne Herlihy	Boston	1907
Jeremiah George Herlihy	Roxbury	1910
Ralph Eugene Hiland	Everett	1910
Don Gleason Hill, Jr.	Dedham	1909
William Hirsh	Dorchester	1907
George Preston Hitchcock	Brookline	1910
Walter Lawrence Hobbs	Boston	1906
William Jason Holbrook	South Weymouth	1906
Jesse Allen Holton	Boston	1911
George Willard Hopkins	Concord	1909
Charles Edward Houghton	Hyde Park	1909
Perry Brooks Howard	Watertown	1910

William Francis Howard	Dorchester	1909
William Everett Howe	Quincy	1911
Albert Edward Hughes	Somerville	1907
*John Hughes	Boston	
Samuel Hurwitz	Roxbury	1905
Lawrence Woodbury Huse	Boston	1909
Fernald Hutchins	Dedham	1907
Abram Hyman	Boston	1906
Guy Atwood Jackson	Dorchester	1910
William Barton Jensen	East Boston	1904
George Marshall Jewell	Everett	1910
*Charles Sumner Johnson	South Boston	
Leo Sidney Jolles	Dorchester	1904
Morris Jolles	Roxbury	1908
Louis Agassiz Jones	W. Somerville	1910
Loring Pierce Jordan	Boston	1907
Wilbur Aaron Jordan, Jr.	Dorchester	1910
Max Manuel Kalman	East Boston	1910
Arthur Francis Keefe	Everett	1907
Bernard Charles Kelley	South Boston	1907
Thomas Kelley	Boston	1905
Richard Ernest Kent	East Boston	1908
Francis Warren Kimball	Chelsea	1908
Maurice Kronick	Boston	1910
Percy Francis Lannon	Roslindale	1907
George Latimer	Boston	1903
Thomas James Lawler	Dorchester	
Henry Lawrin	Boston	1911
Howard Newton Legate	Roxbury	1908
Louis Levin	Boston	1905
Everett Charles Lewis	Medford	1907
George Henry Locke	Denver, Col.	
Harold Wesley Loker	Swampscott	1910
Harrison Loring, Jr.	Roxbury	1908
John Bailey Loring	Dorchester	1901
Edwin Tibbets Luce	Arlington	1908
Charles Henry Lutton	South Boston	1902
Daniel Francis Lynch	Roxbury	
James Francis McDermott	Boston	1909
Herman Albin MacDonald	Beverly Farms	1910
Hugh Boniface McEachern	South Boston	1907
Frederick William McEnery	Cambridge	1907
Edward Aloysius McEttrick	Brookline	1907

Edward MacHarrie	Somerville	1902
James Alvin McKibben	Dorchester	1905
George Alexander McKinnon	Cambridge	1902
John Edward MacKinnon	East Boston	1903
James Preston Mackin	Boston	
Patrick Joseph Madigan	Boston	1910
Frederick Huntley Magison	Haverhill	1910
Francis Louis Maguire	Arlington	1903
George Henry Magurn	East Boston	1903
Thomas Joseph Maloney	Charlestown	1906
Thomas Francis Mansfield	East Boston	1904
Frank Eliot Marble	Lynn	1910
Peter Francis Minnock	Waltham	1906
Francis Moloney	Charlestown	1906
Charles Leroy Moore	Malden	1907
Stephen Francis Morgan	Charlestown	1906
Augustin Vincent Murphy	Dorchester Centre	1910
Bernard Francis Murphy	Waltham	
Hubert Aloysius Murphy	Dorchester	1905
Alexander William Murray	Cambridge	1910
Thomas Vinson Nash	Weymouth	1910
George Nelson	Boston	1910
William Nelson	Boston	1907
William Ignatius Norton	Boston	1909
Charles Joseph O'Connell	Worcester	1909
Frederick William Otto	Dorchester	1902
George Yenetchi Parker	Charlestown	1902
Leonard Wesley Parker	Boston	1906
Albert Leslie Partridge	Waltham	1910
William Peyton	Boston	1903
William John Pike	Chelsea	1910
John Quinn, Jr.	Boston	1906
John Edward Quinn	Cambridge	1906
Edward Clarence Ramsdell	Brighton	1907
Peter Ratzkoff	Roxbury	1910
Edward Waterman Raymond	Boston	
Ernest Orlando Raymond	Somerville	1906
George Whitehorne Reed	Roxbury	1903
Arthur Bickford Rigney	Haverhill	1910
Fred Louis Roberts	West Somerville	1909
Henry Burgess Roberts	Somerville	1906
Allan Robinson	Revere	1910
James Lewis Roche	Lincoln	1909

George Edward Roewer, Jr.	Boston	1909
John Francis Rogan	Charlestown	1905
Charles Henry Rogers	New York	1906
William DeForest Ross	Wollaston	1909
Samuel Rothblum	Dorchester	1906
Daniel David Rourke	Boston	
Elmer Gould Royce	Northboro	1909
Joseph Louis Philip St. Coeur	Cambridge	1902
William Thomas Salter	Boston	1909
Joseph Albert Sedgwick	Quincy	
Julian Seriack	Dorchester	
James Joseph Sheehan	Peabody	1902
Koran Calvin Small	Waltham	1906
Charles Marcus Smith	Boston	1908
Ralph Merrill Smith	Somerville	1904
William Payson Smith	Dorchester	1905
Arthur Asher Sondheim	Roxbury	1904
Elmer Ernest Spear	Everett	
John Speirs	Dorchester	1902
Henry George Spence	Roxbury	1904
James William Spicer	Melrose Highlands	
Robert William Stanley	Boston	1908
Arthur Lawrence Stevenson	Newton	1908
William Booth Stevenson	Newton	1909
William Joseph Stone	Dorchester	1908
Daniel Sullivan, Jr.	Boston	
James Aloysius Sullivan	Boston	1909
Joseph Francis Sullivan	Charlestown	1906
Thomas Francis Sullivan	Cambridge	1910
Frank Brown Swain	Brockton	1907
James William Sweeney	Quincy	1910
Dana Scott Sylvester	Brookline	1908
Frank Baldwin Tallman	Malden	1902
Ralph Lauris Theller	Cambridge	
Edward Armstrong Thomas	Winthrop	1908
Nelson Barnard Todd	Lynn	1908
Henry Patrick Trainor	Waltham	1906
Frank White Tucker	Somerville	1908
James Irwin Tucker	West Somerville	
John Foster Tufts	South Weymouth	1908
Israel Mark Ullian	Roxbury	1911
James Boniface Valley	Cambridge	1902
Robert Comey Van Amringe	Roxbury	1910

Arthur William Vaughan	Somerville	1905
Alexander Thurrott Walker	Forest Hills	1909
George Edward Walker	Wakefield	1908
John Joseph Ward	Medford	1910
Jacob Wasserman	Boston	1907
Otto Aloysius Wehrle	East Boston	1908
Abraham Hermann Weinstein	Boston	1906
William Joseph Welch	Roxbury	1905
David White	Boston	1904
Jonathan Breck White	Watertown	1904
James William Wickwire	Dorchester	1907
Maynard Addison Wood	West Somerville	1910
Arthur Lorrin Woodman	Cambridge	1906
Frank Hubert Wright	Boston	
Alonzo Ernest Yont	Dorchester	1904
Robert Winthrop Young	Boston	1909
Edward Hermann Ziegler	Roxbury	1906

*Deceased.

RULES OF THE STATE BOARD OF BAR EXAMINERS¹

I.

Every applicant for examination shall file his petition at least five days before the examination which he intends to take, and shall file either therewith or with the chairman or secretary of the board proof that he is entitled to be examined, together with evidence of his good moral character and of the course of study, both general and legal, pursued by him.

II.

The proof aforesaid shall include: —

First. A certificate signed by the applicant, stating his residence (name of city or town, with street and number, if any); place and date of birth; citizenship; course of general study prior to studying law; when and where he began the study of law; course of such study, and where he last studied law; any other occupation engaged in since he began the study of law; whether he has been examined before for admission to the bar, either within this Commonwealth or elsewhere, and if so, when and where, and with what result.

Second. A certificate of the attorney or attorneys with whom he has studied, or of the proper officer of the law school or schools attended, stating what the moral character of the applicant is and what course of study he has pursued.

It shall appear in such certificates whether such study has been pursued regularly and attentively, and what vacation was taken in any year. Several certificates may be made so as to cover the whole term of study in cases where such study has not been pursued exclusively in one office or school.

III.

Forms of the certificates to be filed under these rules may be obtained from the several clerks of court, or from the secretary of the board. Further proof on any point may be required by the board, or, satisfactory reasons therefor being shown, such other proof of the requisite facts may be accepted as the board may deem sufficient.

¹*Reprinted from the Statutes and Rules in relation to the Admission of Attorneys in Massachusetts.*

Petitions or proofs may be filed after the time fixed if satisfactory reasons are shown and permission is granted by the chairman or secretary of the board. Petitions referred to the board shall be returned to the files of the court with the report of the board attached thereto, but certificates and other papers filed with petitions may be retained by the board.

IV.

Examinations shall be held in Boston on or about January 1 and July 1 in each year. Due notice of the time and place of holding examinations shall be given.

V.

After an examination has been held and before the Board reports thereon, it shall give public notice of the names of the applicants appearing to possess the qualifications necessary for admission by publishing the same once, at least, in some newspaper having a general circulation throughout the Commonwealth; and such notice shall state, in substance, that upon a day named therein, if no objection shall be made, the board will report to the court that such applicants are found to be qualified. A copy of such notice shall be sent to the clerks of the several courts wherein petitions are pending.

VI.

No applicant under Revised Laws, chapter 165, section 43, and amendments thereof, whose application is referred to the board, shall be excused from taking a regular examination, unless he has been a member of the bar of the highest judicial court of some other state, district, territory or country, and in actual practice, for at least three years; in which case it shall be within the discretion of the board, with the approval of the court, to excuse him from such examination. In the case of applicants recommended for admission under this rule notice shall be published in the manner provided by rule V.

NEW RULE AS TO ACQUIREMENTS AND QUALIFICATIONS

VII.

This is quoted on page 10.

**ADDITIONAL RULE OF BOARD OF BAR EXAMINERS
AS TO TERM OF STUDY OF THE LAW**

(Established August 1, 1910)

VIII

No person shall be eligible for examination for admission to the bar until he shall have devoted three full years, or their equivalent (usual vacations excepted), to the study of the law.

(The above rule was established by the board of bar examiners May 8, 1909, and was approved by the Supreme Judicial Court, to take effect from and after August 1, 1910.)

**ADDITIONAL SUGGESTION OF BOARD OF BAR
EXAMINERS AS TO TERM OF STUDY OF THE LAW**

Term of Study of the Law

The board will consider as a compliance with the provisions of Rule VIII of the board, three years' study in any law school having a three years' course and holding regular day sessions; or four years' study in any evening law school having a four years' course.

OPINIONS FROM LEADING MEMBERS OF THE BAR

JOHN D. LONG
337 Tremont Building

I cordially add my word in commendation of the good educational work of the Young Men's Christian Association, and you have my hearty good wishes in its behalf.

Very truly yours,

J. D. LONG.

ELDER & WHITMAN
Counsellors at Law

I was profoundly impressed by my visit to your school last winter, and by the attitude of seriousness and earnest devotion to work which the men displayed.

Without reflecting in the slightest degree upon our general institutions, it cannot be otherwise than that young men gathered as yours are, from the every-day work of life, will have a vital interest in their work, which cannot come to more surrounded and safe guarded lives. Of course, the strain upon a young man of night work after his day's effort is of the severest kind, and undoubtedly you find that many are not equal to it; but after all, the effort of raising one's self from one position to another is strenuous in the extreme, and it is by just such effort as that that the best men are formed. They have the tremendous advantage of being in close touch with the active life of the times right from the people who serve on juries and who form legislatures, and they ought to have and do have, a capacity for service to the State which the long academic and college course in some characters makes impossible.

You have my hearty and enthusiastic sympathy with and for your work and the young men who are with you.

Faithfully yours,

SAM'L J. ELDER.

STOREY, THORNDIKE, PALMER & THAYER
Counsellors at Law

I am satisfied that there is a large class of young men in the city to whom the opportunities which your institution offers are of very great value, and I am sure that they must find educational opportunities which are most useful. You offer them a chance to spend their evenings in pursuits which will educate them and increase their value and their ability to succeed in any walk of life that they are likely to adopt, and I wish you every success.

Very truly yours,

MOORFIELD STOREY.

SALTONSTALL, DODGE & CARTER
Counsellors at Law

In reply to your letter of March 28, I beg to state that I have always placed a very high estimate on the value of the educational work that your Association

is doing. My experience as an instructor in the Evening Law School gave me an insight into the work that you are doing, and I feel that you are offering a splendid opportunity to the young men of slender means who otherwise would have small opportunities for securing an education.

Yours very truly,

ROBERT G. DODGE.

BATES, NAY & ABBOTT
Counsellors at Law

It gives me pleasure to extend to yourself and your co-workers my congratulations on the success attending the school work as conducted by the Boston Young Men's Christian Association.

You supply a need that is felt by many of our most industrious and promising young men, and I have known many instances of great benefit being derived from attendance at the various departments of the school. I cannot speak too highly of the importance of the work, or of the results attained.

Yours sincerely,

JOHN L. BATES,
Ex-Gov. of the Commonwealth.

LOUIS D. BRANDEIS
161 Devonshire Street, Boston, Mass.

I have had occasion from time to time to observe the school work which your Association is doing in several of its departments, and it seems to me among the most important progressive educational institutions of the Commonwealth. You are certainly aiding largely in making useful and prosperous citizens.

The work in which you are engaged is a great credit alike to its managers and to the many men attending as students after their own hard day's work.

Yours very truly,

LOUIS D. BRANDEIS.

DEPARTMENT OF PHYSICAL WORK

ALBERT E. GARLAND, M.D., B.P.E., Director

The Physical Department is under the best supervision and the aim is to better fit men for their life work by increasing their efficiency through exercise. The Gymnasium Ticket (\$10.00 annually) includes all the privileges of the regular and educational tickets and the use of two good gyms: M. I. T. Gymnasium, Garrison Street, and the Y. M. C. A. Gymnasium, 8 Ashburton Place. Numerous classes the year round. Shower, steam and electric baths. Best instruction. Medical direction. Hand ball courts. Basket ball, baseball, and athletics.

DEPARTMENT OF RELIGIOUS WORK

EDWIN W. PEIRCE, Director

Although mental training makes a young man keen, and physical exercise will make him agile and strong; yet, without the additional moral and spiritual development secured through knowledge of the principles of life laid down by the Great Teacher and striving to make them his own, his career may be a complete failure.

The Association, therefore, advises each member in planning his winter schedule to arrange to take advantage of one or more of the following special features:—

Bible Study, Sunday Meetings of Men, Personal Service Groups, and The Twenty-Four-Hour-A-Day Club.

(Ask for Bible Institute catalog and other printed matter.)

DEPARTMENT OF SOCIAL WORK

DAVID M. CLAGHORN, Director

The attention of members is called to the many opportunities in the Association for social service, and the following features among others:

A Newly Equipped Game Room	The Popular Novel Club
The Association Congress	The Land and Water Club

DEPARTMENT OF EMPLOYMENT

FREDERICK W. ROBINSON, Director

The Employment Department is, in actual practice, a clearing house for young men seeking work, and employers who wish to engage reliable help. From 5000 to 8000 men apply every year. Members of the Association are given 25% discount from the legal rates and special effort is made to notify them when good positions are open.

BOYS' DIVISION

DON S. GATES, A. B., City Sec'y

The physical, social, employment, and religious advantages offered to boys from twelve to eighteen years, are similar to those offered to men as stated above. Membership dues for the boys range from one to six dollars according to the privileges desired. Boys' work is also organized in Roxbury.

SCHOOL OF COMMERCE AND FINANCE

Boston Young Men's Christian Association

ESTABLISHED 1907

INCORPORATED 1910

OFFICERS

JACOB P. BATES, *President* FRANK W. CARTER, *Vice-President*
JOHN E. ROUSMANIERE, *Secretary* FRANCIS B. SEARS, *Treasurer*
FRANK PALMER SPEARE, *Dean*

Courses

Professional Accounting
General Business
Commercial Teaching
Special Certified Public Accountants

Length of Time

The courses require three years' attendance, except the special C. P. A. course, which is two years in length, and is intended for those who do not wish to spend three years in school and yet qualify for the State examination. Students are recommended, however, to take the three years' course.

Degrees

The Degree of Bachelor of Commercial Science is granted to those completing successfully the three years' course. The School has also the privilege of granting the Degree of Master of Commercial Science.

Special Students

Students who do not wish to take one of the regular courses may take special courses with the approval of the Dean.

Tuition

The tuition is \$75. a year, including an Educational Membership, \$5. in the Boston Young Men's Christian Association.

Catalog

A separate catalog will be issued which will give full information regarding the courses, schedule, etc.

For full information, apply to Frank Palmer Speare, Dean, 10 Ashburton Place, Boston, Mass. Telephone, Haymarket 145.

A S S O C I A T I O N I N S T I T U T E

ANNOUNCEMENT

OF THE

AUTOMOBILE SCHOOL

1911-1912



BOSTON, MASSACHUSETTS

Published by the Young Men's Christian Association

1911

ASSOCIATION INSTITUTE

BOSTON YOUNG MEN'S CHRISTIAN ASSOCIATION

Organized on the University Plan

Day, Evening and Summer Schools from the 7th Grade Grammar up to and including work qualifying for a College Degree.

College Preparatory School

Day and Evening Sessions

A high-grade College Preparatory School consisting of a Grammar School (7th and 8th grades) and a High School fitting for the Colleges, Medical and Dental schools, Massachusetts Institute of Technology, Annapolis, West Point, Lowell School for Industrial Foremen, Law schools and the classified Civil Service.

IRA A. FLINNER, A.B., Harvard, Dean

School of Business

Day and Evening Sessions

Offers all of the courses of the regular Business School program, and additional cultural courses preparing for business and admission to our School of Commerce and Finance.

ARTHUR H. DELANO, A.B., Boston University, Dean

Co-operative Engineering School

Day Sessions

Four years' courses of college grade in Chemistry, Mechanical and Civil Engineering, etc., in co-operation with business firms. Students earn while learning.

H. W. GEROMANOS, S.B., Massachusetts Institute of Technology, Dean

Co-operative Business School

Day Sessions

Three years' courses of high school grade in commercial training combined with business experience. Earning while learning.

ARTHUR H. DELANO, A.B., Boston University, Dean

School of Commerce and Finance

Evening Sessions

Established 1907; incorporated 1911. Offers a two years' course in preparation for the Certified Public Accountants' examinations. Provides a three years' course in the science of Business administration. Grants degrees of Bachelor of Commercial Science and Master of Commercial Science.

FRANK PALMER SPEARE, Dean

Evening Law School

Evening Sessions Only

Established in 1898; incorporated in 1904. Provides a four years' course in preparation for the Bar and grants the Degree of Bachelor of Laws.

FRANK PALMER SPEARE, Dean

Polytechnic School

Day and Evening Sessions

H. W. GEROMANOS, S.B., Massachusetts Institute of Technology, Dean

School of Electricity

Day and Evening Sessions

WILLIAM LINCOLN SMITH, S.B., Massachusetts Institute of Technology, Dean

Automobile School

Day and Evening Sessions

Deals with the construction, care and operation of all types of gasoline vehicles; a large staff of teachers; ample equipment and garage. NEW BUILDING. The most complete and best managed Automobile School in America.

WINTHROP C. HOSFORD, Dean

For further information concerning any of the above schools or departments, address the Educational Director,

FRANK PALMER SPEARE, 10 Ashburton Place, Boston, Mass.

OFFICERS OF ADMINISTRATION

ARTHUR S. JOHNSON, President
GEORGE W. MEHAFFEY, General Secretary
FRANK P. SPEARE, Educational Director
GALEN D. LIGHT, Asst. Educational Director and Bursar
OLIVER T. NOON, Secretary of Association Institute
WINTHROP C. HOSFORD, Dean of Association Automobile School

BOARD OF TRUSTEES

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EUGENE N. FOSS WILLIAM T. RICH
CHARLES A. HOPKINS, *Secretary*

EDUCATIONAL COMMITTEE

JOHN E. ROUSMANIERE, *Chairman* JOHN SHEPARD
WILLIAM E. MURDOCK ALBERT H. CURTIS
D. CHAUNCEY BREWER

ADVISORY BOARD

ELLIOT LEE, Ex-President, Mass. Automobile Club
J. S. HATHAWAY, N. E. Manager, White Steam Car Co.
C. J. WHITNEY, Manager, Park Square Automobile Station
CHESTER I. CAMPBELL, Manager, Boston Automobile Show

FACULTY

- ✓ ARTHUR ASHWORTH, Superintendent Machine Shop Repair Course
- ✓ JAMES W. BENNETT, Superintendent of Garage Course
- ✓ EPHRAIM A. BYTHROW, Instructor in Road Course
- ✓ ROBERT A. CHANDLER, Asst. Lecturer and Shop Instructor
- ✓ LEONARD E. FROST, Instructor in Shop Course
- ✓ CHAUNCEY S. GREENE, Superintendent of Shop Course
- ✓ WINTHROP C. HOSFORD, Lecturer
- ✓ CHARLES L. PIERCE, Superintendent of Tool Room
- ✓ L. BERTRAND RICE, Shop Instructor
- ✓ ROLLIN E. SEWARD, Shop and Road Instructor
- ✓ J. LIVINGSTON STRANGE, Shop Instructor

CHARLES B. GRAY, Office Secretary of Association Institute
KATHERINE M. VINTON, Secretary to the Educational Director

ANNOUNCEMENT

The Boston Young Men's Christian Association has, for years, operated one of the most extensive and thorough school systems in the country. The Institute is organized as a university, having the following wholly distinct schools: the College Preparatory School, with day and evening sessions; the School of Business, with day and evening sessions; the School of Commerce and Finance, of college grade, granting the Degrees of B. C. S. and M. C. S., with evening sessions; the Polytechnic School, offering many courses in Engineering and applied science, with day and evening sessions; the Electrical School, offering one, two and three years' courses in applied electricity, with day and evening sessions; the Evening Law School, with a four years' course, leading to the Degree of LL. B., with evening sessions; the School of Co-operative Engineering, with day sessions, enabling boys to earn while learning, offering four years' courses in Mechanical Engineering, Electrical Engineering, Civil Engineering and Chemical Engineering; the Co-operative School of Business with day sessions, offering a three years' course, enabling boys to earn while learning, with day sessions; the Automobile School, offering day sessions throughout the year and evening sessions from October to July and covering every phase of the automobile industry, with the exception of the manufacture of cars.

This great system of schools requires the services of over one hundred expert teachers, lecturers, and assistants and the expenditure of a large amount of money. The attendance is nearly three thousand men and boys annually. Prospective students will note that they are entering a long-established, recognized school where satisfactory results are assured, and their best interests conserved.

THE VALUE OF A SCHOOL

Much has been said and written as to the methods necessary to become a skilful chauffeur or repair man and how the essential qualifications may best be obtained. This controversy is not peculiar to the automobile industry, but to every trade, occupation, and profession. The time was when the law student obtained his legal education in the office of a lawyer. He attend-

ed to detail work, read what he could, absorbed as much as possible, and finally passed very simple examinations, if any were required, and entered practice. Such a course was found, however, to be decidedly unsatisfactory. If the student happened to be in an office where the practice was largely criminal, a knowledge of criminal law was gained, but little else. If in an office where real property or equity received the bulk of attention, these were his strong points. But, in any case, he was a one-sided man.

The same was true of the medical student who studied with a doctor; he was a narrow man. With the progress along educational lines, there came a demand for broadly trained lawyers and doctors, and, as a result, the accumulated knowledge and experience of the legal and medical professions were presented to students by men who gave their entire time to teaching and supervision. Consequently the young lawyer or doctor of today is an all-around man, thoroughly conversant with the theory and practice of his profession, and in possession of the experience of ages.

The shop-trained mechanic follows along the same lines. When he learns a certain trade or part of a trade, in a shop, he picks up what he can, but no one is responsible for his advancement or final attainments. If naturally bright and of a retentive memory, he will, in time, become skilled in certain operations, but he rarely rises above the bench and becomes a superintendent or mechanical engineer who is the product of the technical school. In the training of men for the automobile industry, the same plan holds good. A school is the place, provided the school is a good one, well equipped, well taught, and properly conducted.

THE CHAUFFEUR

The chauffeur occupies a position very similar to that of the locomotive engineer. His function is to drive with care, make adjustments, know when his machine needs important repairs, and see that they are made; in other words, to operate his car with efficiency and the greatest possible economy. Too many chauffeurs lose sight of this last requirement, and fail to keep down the expenses. It is only the man who has a thorough knowledge of his car, who knows the mechanism, its possibilities

and limitations, the function of every part, the possible derangements, their symptoms and how to repair them, who is really efficient.

The chauffeur sustains a peculiar relation to his employer. He is not a servant, on the one hand, nor a companion, on the other; he is supposed to be a skilful, well-trained, competent, gentlemanly, respectful employee, who not only knows his business, but his place, and where he fits into the transportation problem. All of these points, mechanical, social, and economic, are presented in the well-conducted automobile school, and as a result, the chauffeur knows his profession, and is alert to the responsibilities and requirements, and is prepared to meet them. He sustains the same relationship to the automobile industry that the marine engineering department of the United States navy does to our entire naval establishment. These engineers are graduates of the Naval Academy at Annapolis, and are cultured, refined gentlemen, yet they put on overalls and stand watch in a hot engine room below decks surrounded by engines of all descriptions, with complete knowledge of every nut, bolt, and shaft of the entire vessel. These men do not apologize for their grimy hands, but, instead of being classed as ordinary mechanics, have raised the whole standard of marine engineering to the gentleman's level, and have shown that the skilled operator of expensive and delicate machinery is quite on a par with his cleaner, though no more honorable, fellow officer of the quarter-deck. The chauffeur should thus regard his profession, and seek to be an indispensable adjunct to every refined American home which can afford the luxury of a motor car; or, if in commercial lines, he should strive to make himself a thorough master of the requirements and economic conditions of the industry, and be an important factor in it. This high conception of the automobile industry and the function of the chauffeur and repair man make attendance at a well-conducted automobile school indispensable, and it is these features which are prominent in the work of the Automobile School of the Boston Young Men's Christian Association, one of the very few automobile schools in which a man can get full value for his money.

THE AIM OF OUR SCHOOL

1. To meet the needs of the prospective purchaser, that he may buy intelligently.
2. To enable the owner to understand the mechanical principles and requirements for care, so that he may save repair bills, enjoy his car, and get longer service from it.
3. To fit chauffeurs thoroughly for the responsibility of operating a car on the public highway: to equip them with a thorough knowledge of the mechanism; the requirements for its care; the troubles which are likely to occur; their symptoms, tests, and remedies: to make repairs and adjustments, and drive skilfully.
4. To provide a thorough and strictly up-to-date Machine Shop Repair course. This includes motor trucks and pleasure vehicles, that the student may secure and hold a position in any well regulated repair shop.
5. To teach the approved methods of operating and managing a Garage, including the bookkeeping and proper treatment of patrons.
6. To train men as demonstrators and salesmen and for the business in general. The courses are also of great value to the man whose business brings him in touch with the automobile trade as a dealer in sundries or as press representative.

LOCATION

The school is located at 288 St. Botolph Street, Fenway, Boston, where all the instruction is given. This is near the New Art Museum and opposite the St. Botolph St. entrance to the Conservatory of Music. Those desiring information in regard to our courses should apply at the office of the Association Institute of the Boston Young Men's Christian Association, 10 Ashburton Place.

THE SCHOOL AND ITS WORK

Our automobile school, the first in America, was established in 1901. It sprang at once into popular favor and has continued to grow in worth and patronage from year to year. So great has been its expansion that we have been forced to move four

times, having outgrown our quarters, until the present year we have erected *the finest automobile school building in existence* and equipped it with machinery, cars, parts and tools, in such a manner as to cover every branch of the industry except the manufacture of new cars.

THE BUILDING

The building is a fireproof brick and concrete structure, over 140 feet in length, 60 feet in width, with two stories and a high basement. The first floor contains a fully equipped garage with every modern appliance including gasolene wagon, electric polishing machines, pneumatic cleaners, most approved washing appliance, and drop lights. On this floor are also located the garage office, ladies' waiting room, gentlemen's waiting room, and show window for the display of the latest models of cars.

In communication with the garage is a fully equipped machine and repair shop with benches, lathes, power drill presses, milling machine, grinders, shaping machines, dies, over-head track, forge, tool-room and every appointment of a modern shop.

On the second floor are located the automobile school for chauffeurs and operators with a large finely ventilated lecture room seating 180 persons, provided with every form of illustrative material; the school office; telephone exchange; reading room and study; the Dean's private office; coat room; printing office; office of the shop superintendent; tool room; private instruction room; a separate room for teaching the washing of cars; dressing room and a large shop or laboratory with storage facilities for a great number of cars and equipment.

The lower floor of the building is devoted to the use of the Electrical and Woodworking Schools. The former has a large laboratory fully equipped with commercial appliances of all kinds; two good sized lecture halls; office of the Dean; private instruction room; testing room; tool room; instrument room and coat room. Adjoining the Electrical School is a large shop in which is to be installed various wood-working machines, including lathes, circular and band saws, steam box, etc., for the teaching of furniture manufacture, boats and other industrial products.

The building is heated by steam; lighted by electricity; has an elevator connecting all floors and a great abundance of daylight; is on a quiet street, and in fact, possesses every facility which modern science or experience could suggest.

THE FACULTY

The Faculty of the Association Automobile School has been selected with great care regarding technical skill, high moral character, interest in the work and ability to teach.

The students are taught by men of technical training, practical shop experience and refinement. These men give their full time to the school, and are interested in the personal development and success of every student.

They regard the work of a chauffeur and repair man as a profession, and have sought to accumulate all the knowledge and experience obtainable from the most reliable sources, and present this information in an attractive and useful form. It is safe to state that no young man with any mechanical ability, who also possesses character and tact, can fail, upon taking our Automobile course, to become a very useful man to any one requiring a competent chauffeur and repair man.

THE EQUIPMENT

The school is provided with a large and valuable equipment purchased at the cost of thousands of dollars. Besides tools, miscellaneous parts and general equipment, we provide 1, 2, 4, and 6-cylinder chassis and cars for shop use, and maintain several cars on the road.

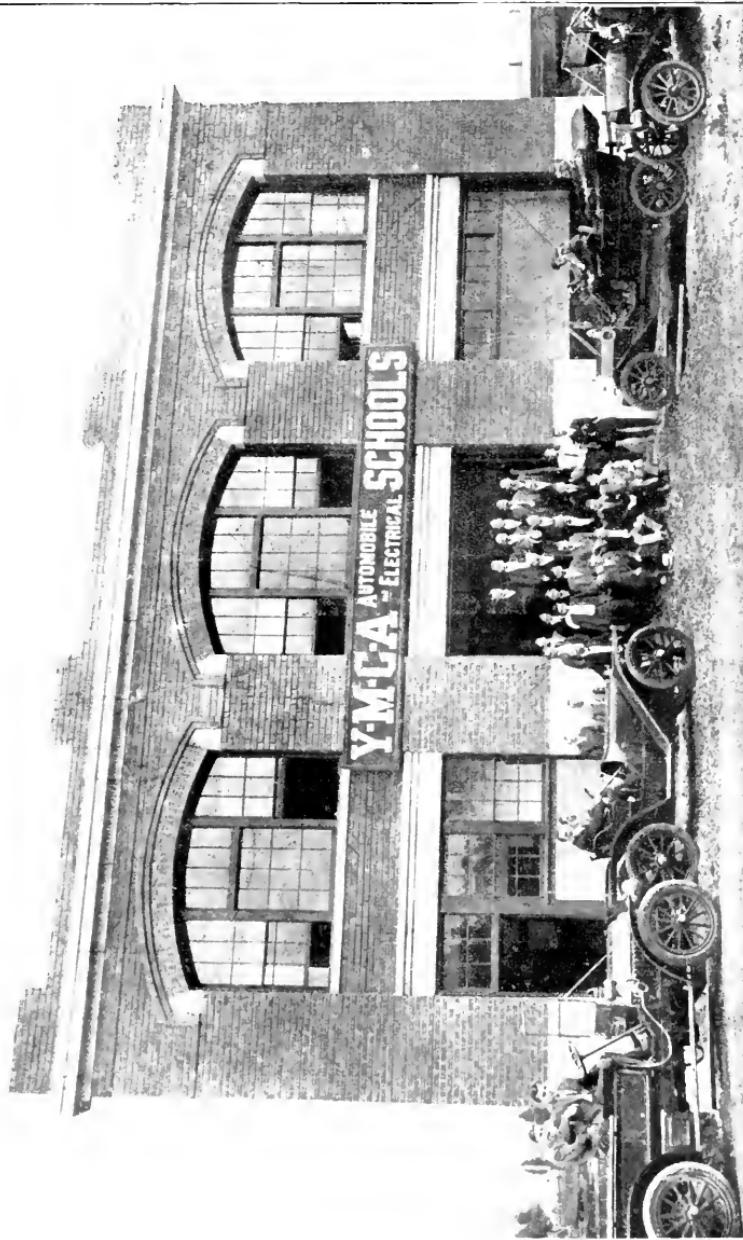
COURSES

The automobile fraternity, owners and employers, are well aware of the great responsibility which rests upon a chauffeur or operator. Not only is he responsible for the care of an expensive mechanism, but human life is directly under his charge. The owners and occupants of every automobile, and likewise the public, demand their proper share of protection. In view of this fact, the following courses have been adopted and thoroughly worked out, the success with which we have met demonstrating the value.

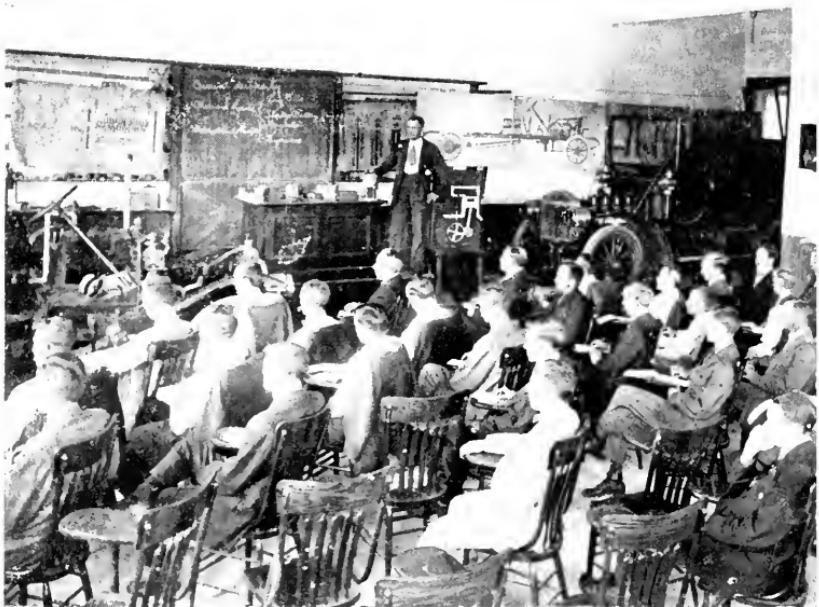
CONDENSED SCHEDULE

Courses	Cost	Length	Time
Chauffeurs' & Operators' Road Course	\$25.00	2 weeks	Day
Chauffeurs' & Operators' Lecture Course	12.00	6 weeks	Day
Chauffeurs' & Operators' Laboratory Course	13.00	9 weeks	Eve.
Chauffeurs' & Operators' Unlimited Course Combining Lecture, Laboratory and Road Courses	50.00	6 weeks	Day
		9 weeks	Eve.
Garage Course	10.00	3 weeks	Day
		5 weeks	Eve.
SPECIAL COURSE FOR BUSINESS MEN AND LADIES			
a. Lecture Course	\$12.00	6 weeks	Day
b. Laboratory Course	13.00	9 weeks	Eve.
PRIVATE LESSON COURSE			
a. Care of car	\$12.00	6 Lessons	Day
b. Roadside Difficulties	12.00	6 Lessons	or
c. Operative Principles	12.00	6 Lessons	Eve.
d. Private road lessons	3.00	Each	
AUTOMOBILE MACHINE SHOP REPAIR COURSE	\$50.00	18 weeks	Eve.
		9 weeks	Day

Special Note.—The above rates are in addition to a membership in the Young Men's Christian Association. See page 18.



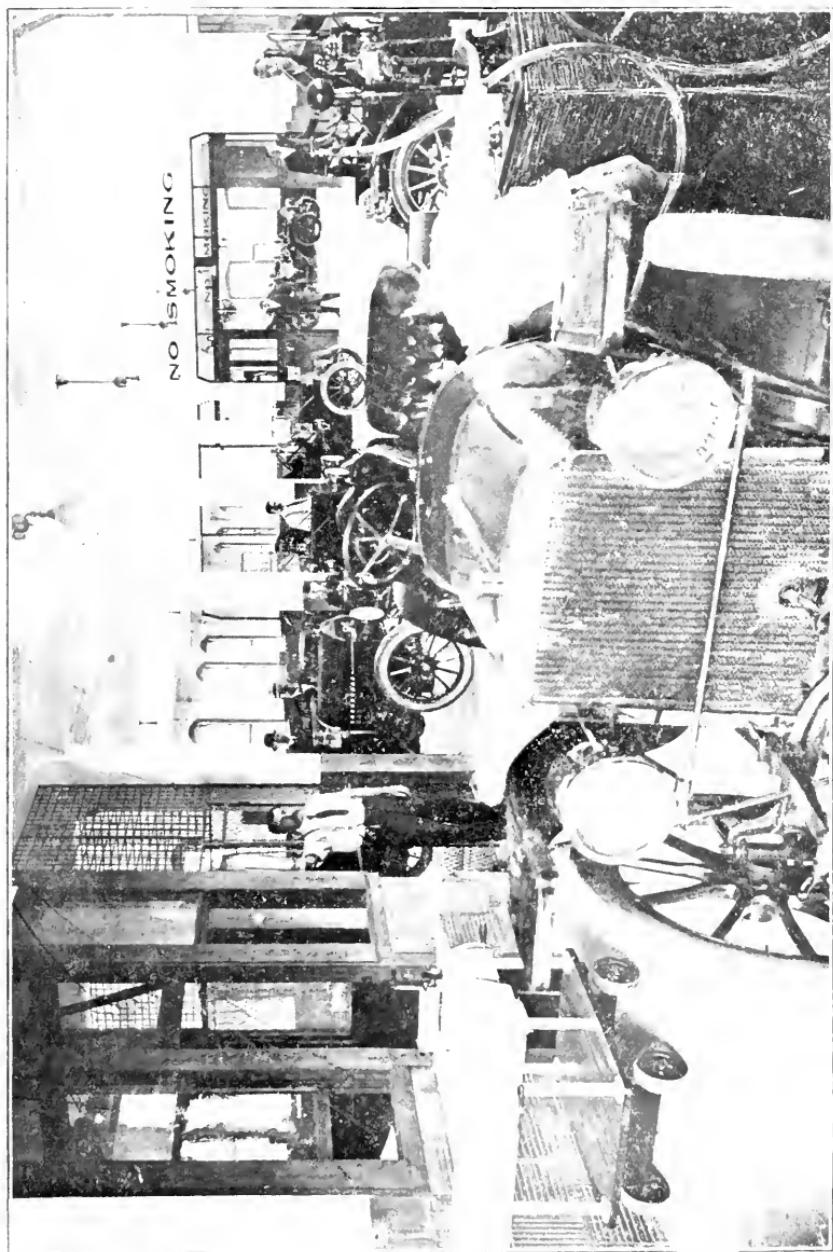
NEW BUILDING BOSTON Y. M. C. A. AUTOMOBILE SCHOOL.



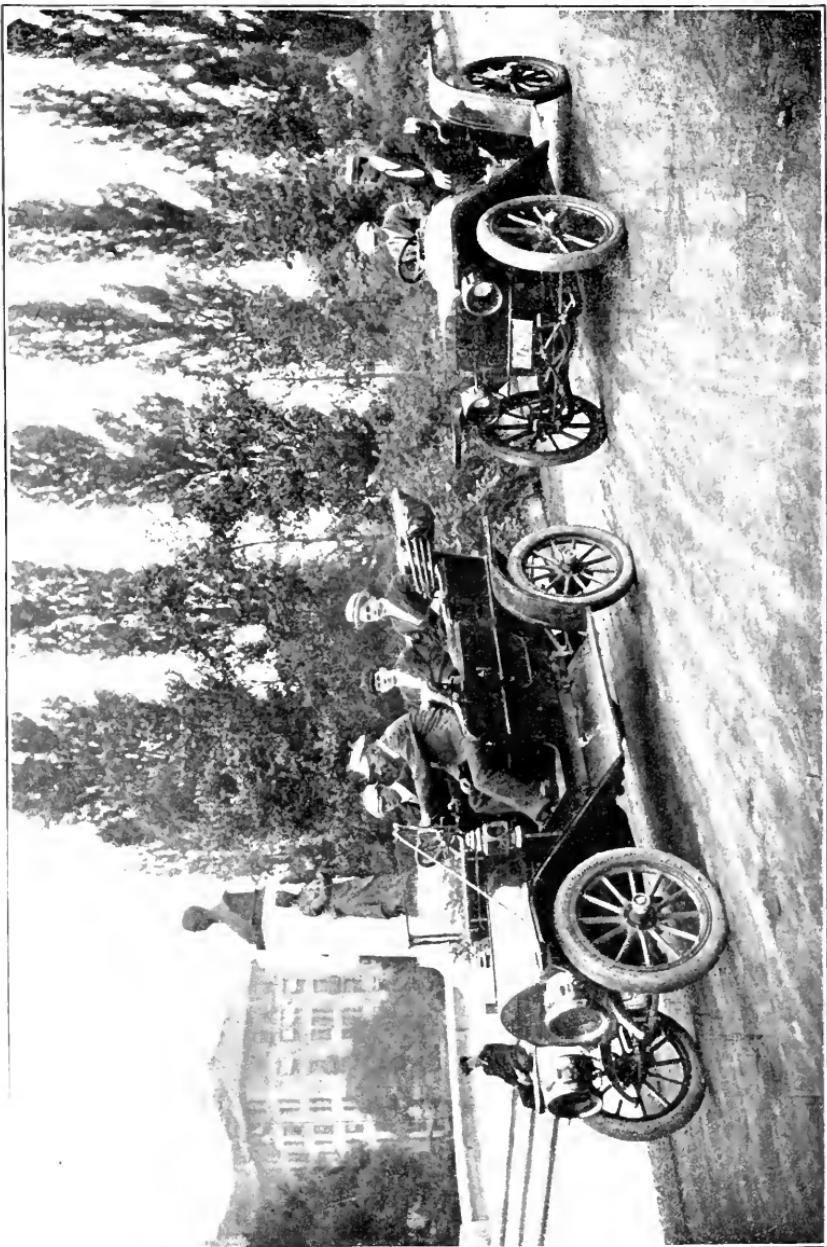
DAY CLASS IN LECTURE ROOM



LABORATORY COURSE IN ACTION



INTERIOR OF GARAGE



PROFESSIONAL CHAUFFEUR'S AND OPERATOR'S ROAD COURSE

This course is to accommodate those who wish to learn to drive and secure an Operator's or Professional Chauffeur's License and is characterized by actual experience in driving up-to-date touring cars and roadsters over all conditions of roads and under expert instructors. This course illustrates the approved methods of managing the controlling levers, throttle, spark, clutches, brake, gear-shifter, accelerators and involves thorough experience in turning in narrow streets, hill climbing and reversing.

The Road Department is also equipped to provide road instruction in commercial truck driving when desired.

Students seeking a Professional Chauffeur's License in Massachusetts are required to pass a rigid examination, requiring the applicant to give a demonstration under the inspection of the State Board of Examiners.

The use of the car for the demonstration at the Highway Commission is included in the regular Road Course without additional charge. Should the student fail to pass the State examination on the first trial, he is given additional road instruction and the use of the car for a second examination without additional charge.

The Road instruction in our school, therefore, is very thorough and is in charge of exceptionally careful and competent instructors.

It may be added also that the Road Course affords a particularly enjoyable experience from the fact that some of the lessons are given over the beautiful parkways and country roads near the city. These roads are the finest in America.

A diploma is issued to all who complete this course satisfactorily and pass the required examinations.

Schedule and Tuition

When the Road Course alone is taken, the time required is two weeks. In case the Lecture and Laboratory courses are also taken, the Road Lessons are given during the forenoon of the Lecture days, thus not delaying the progress of the student. This arrangement permits the student to complete the Day

courses of Lecture, Laboratory and Road in six weeks, and the corresponding Evening courses in nine weeks.

The tuition for the Road Course is Twenty Five Dollars, to members of the Association. For membership fee see page 18.

LECTURE COURSE

This course is designed to assist those who wish a thorough knowledge of the construction and care of the automobile and is composed of demonstration lectures in which are presented the operative principles, different types of cars, requirements for care, and the difficulties which are likely to occur in connection with each part, together with their symptoms, tests and remedies.

The following syllabus indicates the principle subjects of the lectures: Analysis of the gasoline vehicle; names of parts and their purpose; theory of explosion; operative principles of the internal combustion engine.

Various designs of engines and their requirements for care; methods of timing and setting valves; weak compression, causes and remedies.

Carburetors; various types; difficulties and remedies.

Cooling systems and requirements for care; governor and throttle action.

Study of ignition systems; various methods and parts of equipment; derangements; symptoms and remedies.

Requirements for care and adjustment of clutches, and various types of transmission or change-speed gears.

Study of differential gear; centre-shaft drive; axles and bearings; double-chain drive and care of the same.

Road derangements and remedies; care and repair of tires; care of lamps and accessories.

Construction of steering gear and brakes, and action of controlling levers on the road.

Systematic inspection of car and duties of a chauffeur.

Touring necessities; tool equipment; lighting systems and care of the same; rules for preparing a car for a trip and starting engine.

The lecture course is one of the most valuable features of the entire School and is characterized by scientific, practical

instruction relating to every phase of the automobile industry, care and up-keep, possible derangements, their symptoms, and cure. No owner, intending purchaser, or operator of an automobile can fail to secure the greatest benefit from these lectures.

Schedule and Tuition

Day Course. Lectures on Monday, Wednesday and Friday, 1.30 P.M., continuing for six weeks, courses being repeated throughout the year.

Evening Course. Lectures on Monday and Thursday at 7.30 P.M., continuing for nine weeks, and repeated throughout the year, except during July, August and September.

Tuition fee for the lecture course is \$12.00 to members of the Association. For membership fee see page 18.

LABORATORY COURSE

In this course, students receive in actual shop practice the work as outlined in the Lecture Course, and each student is required to perform the duties devolving upon operators in the care, control and management of cars; to take down and reassemble and adjust engines and cars, together with practical experience in grinding valves, testing for weak compression and applying the remedies, removing carbonization, adjusting connecting rods, timing engines, dissecting carburettors and locating difficulties and adjusting properly. Testing for ignition difficulties, circuiting the lines to locate trouble, adjusting vibrators, locating skipping cylinders, cleaning spark-plugs, testing and care of batteries, dissecting high and low tension magneto, timing magneto, adjusting and cleaning circuit breaker, locating and remedying magneto difficulties; adjustment and care of steering gear, springs, wheels and brakes; testing and adjustment for proper supply of oil to cylinders; care of tires, removing, vulcanizing and replacing the same.

We wish to emphasize the fact that each student is required to actually perform, in person, the above shop exercises and tests, and many more.

Each student should provide himself with jumper, overalls, 6-inch screw-driver, 8-inch monkey wrench and a pair of 5-inch pliers. The other tools are furnished by the school.

The Laboratory course is of extreme practical value, owing to the fact that the work covered in the lecture course is actually done by each student, inspected and passed upon by the instructor. This work is indispensable to one who wishes to know HOW, as well as WHY.

This course is open only to those who are taking the lecture course, or who pass an entrance examination.

Schedule and Tuition

Day Course. Laboratory work Tuesday and Thursday, 8.30 A.M. to 5 P.M., and on Saturday 8.30 to 12 M. This course is six weeks in length and is conducted throughout the year.

Evening Course. Laboratory work Tuesday, Wednesday and Friday 7 to 9.30 P.M. This course is nine weeks in length and is conducted throughout the year except during July, August and September.

Tuition fee for the Laboratory Course is \$13.00 to members of the Association. For membership fee see page 18.

CHAUFFEURS' AND OPERATORS' UNLIMITED COURSE

This course is a combination of the previously described courses, viz: Road, Lecture and Laboratory, these three comprising the regular, well known and popular *Boston Y. M. C. A. Automobile Course* and all are practically necessary to one who wishes to become a proficient chauffeur or operator.

When taking the *Unlimited Chauffeurs' and Operators' Course* the Road Lessons are given during the latter part or at completion, of Lecture and Laboratory Courses, being optional with the student.

Schedule and Tuition.

Day Class, six days per week for six weeks. Evening Class, five evenings per week for nine weeks.

Tuition Fee for the Unlimited Chauffeurs' and Operators' Course is \$50.00 to members of the Association.

For Membership Fee see page 18.

To all passing examinations in this course, a Special Unlimited Chauffeurs' and Operators' Diploma will be granted.

GARAGE COURSE

This course is to teach the operation and management of an automobile garage, and is indispensable to one contemplating the management of a garage. The improved methods and systems adopted and approved by the leading garages are emphasized and illustrated in our thoroughly equipped garage.

The student is also trained in the service of garage work, polishing by electricity, vacuum cleaning, garage book-keeping and the proper treatment of patrons, etc.

As the touring tendency increases, garages will be in operation in all parts of the country requiring skilful management. Training and experience are necessary to insure success. This we offer under ideal conditions.

Schedule and Tuition

Day Course. Six days per week for three weeks, the course being repeated throughout the year.

Evening Course. Five evenings per week for five weeks, the course being repeated throughout the year except during July, August and September.

Tuition fee for the garage course is \$10.00 to members of the Association. For membership fee see page 18.

SPECIAL COURSE FOR BUSINESS MEN AND LADIES

This course of instruction is designed to assist the busy man, owners, intending purchasers and ladies to a knowledge of the automobile.

The many testimonials which we have received from business men and owners permit us to state that this course of instruction will not only save the owner large sums in repair bills but will add greatly to the pleasure of motoring, by enabling him to locate and remedy motor difficulties and save vexatious delays by the wayside. The highest degree of pleasure in motoring comes only to the man who has a thorough knowledge of the operative principles and care of his car. The owner is made to feel that the engine of his automobile, instead of seeming to be a sputtering monster, whose mildest voice is a threat of danger, may become a valued friend, who will seldom disappoint anyone who intelligently gives it proper care.

To the intending purchaser also, this course is extremely valuable from the fact that with the knowledge gained, he is empowered to select with wisdom.

The Day course is held at convenient hours which make it possible to attend without conflicting with business or evening engagements.

The Evening course is especially prepared for those who find it inconvenient to attend during the day.

Schedule and Tuition

Day Class. Lectures, Tuesday and Thursday, at 4 P.M., Saturday at 1.30 P.M. Laboratory Course, Monday, Wednesday and Friday from 3 to 6 P.M.

Evening Class. Lectures, Tuesday and Friday at 7.30 P.M. Laboratory Course, Monday and Thursday, 7 to 9 P.M.

Tuition, Lecture Course, Day or Evening \$12.00. Laboratory Course, Day or Evening \$13.00. Tuition is payable in advance at the office of the Educational Department, 10 Ashburton Place. These rates are in addition to membership in the Association. See page 18.

(Special note. Ladies are not required to become members of the Association.)

PRIVATE LESSON COURSE

We are especially well prepared to handle private lessons including roadside difficulties, operative principles and driving. Complete information concerning these courses will be furnished upon application.

AUTOMOBILE MACHINE SHOP REPAIR COURSE

This course is intended to teach the vocation or trade of automobile repairing and provides thorough instruction and experience in actual repair work. This course is designed to enable the student to occupy and hold a position as repair man in any automobile shop. This course includes the overhauling and repairing of automobiles brought to the school. The car is dissected, the parts carefully measured, and wherever wear is shown, replacements and readjustments are made, the car reassembled, and put in running order. Mud guards are changed, steering posts altered, magnetos and carburettors repaired, batteries charged, ignition systems rewired, delivery cars and runabouts made from touring cars, and the entire appearance and efficiency of the car improved.

The work of this department includes teaching and experience in filing and fitting, cold chisel chipping, scraping bearings, tightening bolts and nuts, lock washers, removing broken bolts, etc.

Tap and die work, sawing stock with hack saws, soldering and brazing.

Centering and straightening stock, pipe fitting and bending, gear trimming.

Babbitting bearings.

Calipers and their use. Outside, inside and micrometer calipers.

Drill work. Hand, ratchet, pneumatic, electric and power drills.

Practical use of the lathe in the repair shop. Turning and fitting bearings, reaming, boring and grinding cylinders.

Use and care of shaping machines as related to automobile repairs, splining, key seating, etc.

Tool grinding, polishing and tempering.

Operation of milling machine as related to automobile repairs.

Starting engine, observing and reporting running qualities, inspecting car for repairs and laying out repairs.

This course teaches and successfully prepares young men to secure and hold positions in up-to-date repair shops, and is of inestimable value to those contemplating running an automobile repair shop, or to those who wish to earn a living in this industry.

Schedule and Tuition

Day Course. Repair work is done five days a week from 9 A.M. to 5 P.M., and on Saturday from 9 to 12 M. The course is nine weeks in length and is repeated throughout the year.

Evening Course. Repair work is done five evenings per week from 7 to 9.30 P.M., for 18 weeks. The evening course is offered throughout the year except during July, August and September.

Tuition is \$50.00 payable \$25.00 upon entrance and \$25.00 at mid-term. This rate is to members of the Association. See page 18.

Additional Information

Admission to this course requires a general knowledge of the driving and the operative principles of the automobile. Application and question blanks will be forwarded by mail upon request. Students will be required to furnish overalls and jumper and the following tools: 5-in. pliers, 4-in. and 6-in. wrenches, a 6-in. screw driver, a 1-in. micrometer, a 3-in. outside caliper and a 3-in. inside caliper.

A diploma will be issued to all who successfully complete this course.

MEMBERSHIP

All students pursuing courses in the school must hold a membership in the Boston Young Men's Christian Association. This is \$5 or \$10, according to privileges desired.

Privileges in the Association

Students are reminded of the fact that when they enroll as

students in the school they become members of the Association and as such are entitled to many privileges and are surrounded by uplifting influences. Ask for our Year Book which enumerates the many privileges open to members.

Our membership ticket is transferable to many other Associations and *vice versa*.

Suburban Association Members

All tickets held by members of the Cambridge, Chelsea, Everett, Malden, Melrose, Newton, Quincy and Somerville Associations will be honored for social privileges in the Boston Association. Holders of such tickets are allowed credit of \$2.00 on either an educational or a gymnasium membership.

BUSINESS PHILOSOPHY

The first and most important step leading to success in any field of endeavor is efficient preparation. To be prepared is the secret of success in the Automobile World, as well as in other professions.

Our school can assist you to success.

THE PROOF OF IT

The proof of the efficiency of any school is shown by the success of its graduates. We will mail you, upon request, testimonials which we do not have room to place in our regular catalog. Our school has a national reputation, and has won recognition as the most progressive, modern and effective automobile school in America and we are pleased to refer prospective students to the leading dealers throughout the New England States. It is very gratifying to know that a very large number of our students have been referred to us by dealers and others who are connected with the automobile industry. This indicates very strongly that the men who best know the exact requirements of one engaged in the automobile field believe thoroughly in our ability to meet those requirements.

A WORD AS TO PROSPECT

There is no occupation in which a small investment is capable of yielding so great a return. To the owner or pros-

pactive purchaser it means the saving of hundreds of dollars in repairs and up-keep. To the chauffeur it means a well-paying and responsible position at wages much in excess of those paid in most lines of work. To the repair man and garage keeper it means admission to a broad field of activity and a well-paid profession.

EMPLOYMENT

We are frequently asked if we guarantee positions to those completing our courses. In reply we would state that we make the same guarantee that any college or high-grade school does, namely, that of a thorough course.

No reputable school ever guarantees a job to gain a student. The school maintains an active and proficient employment department. Upwards of two thousand men, graduates of our school, are holding positions as chauffeurs, a large number of whom have secured their positions through our employment department.

Visit to our School Urged

We urge all men contemplating taking an automobile school course to call at the Association, talk the matter over in detail and secure a visitor's pass to the school.

Advisory Board

Attention is called to the members of our Advisory Board whose names appear in the front part of the catalogue. They are some of Boston's most prominent automobile representatives.

Backward Students

Should a student be deficient in the shop or lecture work at the close of his course, and be unable to pass the examination, he is privileged to remain a reasonable length of time and receive additional instruction without extra charge.

Advantages to Out-of-Town Students

The Association is exceptionally well prepared to be of assistance to those who come from distant places and are obliged to board in the city while taking the course. We have a selected list of rooms and boarding places. Employment is sometimes secured through our Employment Department for those who wish to earn money while taking our courses.

For additional information, call on or write to Frank Palmer Speare, Educational Director, Young Men's Christian Association, 10 Ashburton Place, Boston. Telephone Haymarket, 145.

A S S O C I A T I O N I N S T I T U T E

Boston Young Men's Christian Association

ANNOUNCEMENT

OF THE

School of Commerce and Finance

1911-12



BOSTON, MASSACHUSETTS

Published by the Young Men's Christian Association

1911

ASSOCIATION INSTITUTE

BOSTON YOUNG MEN'S CHRISTIAN ASSOCIATION

Organized on the University Plan

Day, Evening and Summer Schools from the 7th Grade Grammar up to and including work qualifying for a College Degree.

College Preparatory School

A high-grade College Preparatory School consisting of a Grammar School (7th and 8th grades) and a High School fitting for the Colleges, Medical and Dental schools, Massachusetts Institute of Technology, Annapolis, West Point, Lowell School for Industrial Foremen, Law schools and the classified Civil Service.

IRA A. FLINNER, A. B., Harvard, Dean

School of Business

Day and Evening Sessions

Offers all of the courses of the regular Business School program, and additional cultural courses preparing for business and admission to our School of Commerce and Finance.

ARTHUR H. DELANO, A.B., Boston University, Dean

Co-operative Engineering School

Day Sessions

Four years' courses of college grade in Chemistry, Mechanical and Civil Engineering, etc., in co-operation with business firms. Students earn while learning.

H. W. GEROMANOS, S.B., Massachusetts Institute of Technology, Dean

Co-operative Business School

Day Sessions

Three years' courses of high school grade in commercial training combined with business experience. Earning while learning.

ARTHUR H. DELANO, A.B., Boston University, Dean

School of Commerce and Finance

Evening Sessions

Established 1907; incorporated 1911. Offers a two years' course in preparation for the Certified Public Accountants' examinations. Provides a three years' course in the science of Business administration. Grants degrees of Bachelor of Commercial Science and Master of Commercial Science.

FRANK PALMER SPEARE, Dean

Evening Law School

Evening Sessions Only

Established in 1898; incorporated in 1904. Provides a four years' course in preparation for the Bar and grants the Degree of Bachelor of Laws.

FRANK PALMER SPEARE, Dean

Polytechnic School

Day and Evening Sessions

H. W. GEROMANOS, S.B., Massachusetts Institute of Technology, Dean

School of Electricity

Day and Evening Sessions

WILLIAM LINCOLN SMITH, S.B., Massachusetts Institute of Technology, Dean

Offers one and three years' courses in Applied Electricity and Engineering. Well-equipped shops and laboratories.

Automobile School

Day and Evening Sessions

Deals with the construction, care and operation of all types of gasoline vehicles; a large staff of teachers; ample equipment and garage. NEW BUILDING.

WINTHROP C. HOSFORD, Dean

For further information concerning any of the above schools or departments, address the Educational Director,

FRANK PALMER SPEARE, 10 Ashburton Place, Boston, Mass.

CALENDAR

1911

August 1 to September 14.	Elementary Preparation in Book-keeping.
September 15, 18.	Entrance Examination in Elementary Bookkeeping.
September 18, 19, 20.	Registration.
September 22.	Organization of Classes.
September 25.	Opening of the First Term.
October 12.	Columbus Day, Holiday.
November 30.	Thanksgiving Day, Holiday.
December 25.	Christmas Day, Holiday.

1912

January 20-27	Mid-year Vacation.
January 29.	Opening of Second Term.
February 22.	Washington's Birthday, Holiday.
April 19.	Patriots' Day, Holiday.
May 30.	Memorial Day, Holiday.
June 3-7.	Final Examinations.

The first year courses only will be offered the present school year.

ASSOCIATION OFFICERS OF ADMINISTRATION

ARTHUR S. JOHNSON, President

GEORGE W. MEHAFFEY, General Secretary

FRANK P. SPEARE, Educational Director

GALEN D. LIGHT, Asst. Educational Director and Bursar

OLIVER T. NOON, Secretary Association Institute

EDUCATIONAL COMMITTEE

JOHN E. ROUSMANIERE, *Chairman*

D. CHAUNCEY BREWER

JOHN SHEPARD

WILLIAM E. MURDOCK

ALBERT H. CURTIS

SCHOOL OF COMMERCE AND FINANCE

Officers and Members of the Corporation

JACOB P. BATES, President FRANK W. CARTER, Vice-President

JOHN E. ROUSMANIERE, Secretary FRANCIS B. SEARS, Treasurer

F. R. CARNEGIE STEELE, F.C.A., C.P.A., Chairman of Executive Committee

AMOS D. ALBEE, Certified Public Accountant

GEORGE L. BISHOP, Certified Public Accountant

HARVEY S. CHASE, Certified Public Accountant

GEORGE W. COLEMAN, Director of Publicity, W. H. McElwain Company

MORGAN L. COOLEY, C.P.A., Manager of Gunn, Richards & Company

ALBERT H. CURTIS, General Agent, N. E. Mutual Life Insurance Company

WILLIAM DILLON, Certified Public Accountant

ALFRED D. FOSTER, President of the N. E. Mutual Life Insurance Company

HERBERT F. FRENCH, Certified Public Accountant

EDWIN F. GAY, Ph. D., Dean of the Harvard Graduate School of Business Administration

ARTHUR S. JOHNSON, President of the Boston Y. M. C. A.

JOSEPH F. JOHNSON, Ph. D., Dean of the School of Commerce, Accounts and Finance, New York University

J. EDWARD MASTERS, C.P.A., New England Representative, Price, Waterhouse & Company, Accountants

GEORGE W. MEHAFFEY, General Secretary, Boston Y. M. C. A.

JAMES P. MUNROE, Chairman of the Committee on Education, Boston Chamber of Commerce

WILLIAM E. MURDOCK, Firm of Sampson & Murdock Company, Publishers

SILAS PEIRCE, President, Silas Peirce Company

JOHN SHEPARD, President of Shepard Norwell Company

FRANK P. SPEARE, Educational Director, and Dean of Law School, Boston Y. M. C. A.

JESSE S. WILEY, Retired

FACULTY

FRANK PALMER SPEARE, *Dean*

- ✓ HARRY C. BENTLEY, C.P.A., Head of the Department of Accountancy
- ✓ GUY NEWHALL, A.B., LL.B., Commercial Law
- ✓ WILLIAM E. DORMAN, A.B., LL.B., Commercial Law
- ✓ ARTHUR L. WOODMAN, LL.B., Commercial Law
- ✓ BURTON L. READ, Finance
- ✓ SAMUEL DAVIS, LL.B., Life Insurance
- ✓ WILLIAM B. MEDLICOTT, S.B., Fire Insurance
- ✓ JAMES P. LOGIE, Spanish
- ✓ CHAS. E. DUNBAR, A.B., Economics

SPECIAL LECTURERS

- AMOS D. ALBEE, Certified Public Accountant
- GEORGE L. BISHOP, Certified Public Accountant
- ✓ HARVEY S. CHASE, Certified Public Accountant
- ✓ MORGAN L. COOLEY, Certified Public Accountant
- ✓ GEORGE W. COLEMAN, Certified Public Accountant
- WILLIAM DILLON, Certified Public Accountant
- HERBERT F. FRENCH, Certified Public Accountant
- J. EDWARD MASTERS, Certified Public Accountant
- F. R. CARNEGIE STEELE, Certified Public Accountant

CHARLES B. GRAY, Office Secretary

KATHERINE M. VINTON, Secretary to the Dean

SPECIAL NOTE

As only the Freshman Year courses will be offered 1911-12, the names of the faculty for the following years do not appear.

SCHOOL OF COMMERCE AND FINANCE

GENERAL STATEMENT

Historical Review.

In 1907 the Boston Young Men's Christian Association established the School of Commerce and Finance, and it has been in successful operation since that date. It has offered an extensive program, and the grade has been constantly raised in anticipation of the time when it would be incorporated with the right to grant appropriate degrees.

In January of 1911 the School was incorporated, and in the following March the Legislature granted the privilege to confer the degrees of B.C.S. (Bachelor of Commercial Science), and M.C.S. (Master of Commercial Science).

The present courses have been revised and broadened, additional courses have been added, and the faculty increased. The School will at once take its place among the higher institutions of learning, and make a valuable contribution to the commercial interests of the Commonwealth.

Development of Business Specialists.

During the past few years, men of pronounced ability have seen the wisdom of specializing, and as a result we find in a modern business one man who devotes himself exclusively to the advertising; another who specializes as purchasing agent; another as sales manager; another as an accountant, etc. The president, or general manager, is an administrative officer, and his most important function is to engage the best prepared specialists for the different departments. This is not an easy task, for the demand for such men exceeds the supply.

Books written by Business Specialists and Students of Business.

Students of business affairs and successful business men have made an exhaustive study of the effects produced by the application of scientific principles to commercial problems, and have incorporated the results of observation, extended research, and experience, in books that treat of various economic subjects.

Educational Preparation for those who would become Business Specialists.

With the vast expansion of business, business men, and business methods, have broadened, until today we see a community of common interests in commercial knowledge, each one willing to give and take rational, modern, ideas. The School of Commerce and Finance is a clearing house for the latest ideas of business education as developed by specialists in business. Its chief aim is to train men who are willing to devote their evenings to study, and who desire to obtain the accumulated knowledge and experience from the most reliable sources.

Many of the largest American universities have, during recent years, established schools for the purpose of properly preparing men for business careers. The School of Commerce and Finance numbers as one of these institutions, and makes it possible for men engaged during the day to attend its courses during the evening. By conducting evening courses it is able to secure as instructors and lecturers, men who could not afford to devote their days to teaching.

The preparation offered by this School is wholly apart from that given by the ordinary commercial high school or college. These latter schools aim to train persons to become recorders of others transactions, to write shorthand, keep books and perform other operations incident to the conduct of business, but they do not attempt to teach those underlying principles on which the commercial structure of a country rests; namely, Economics, Business Organization and Management, Scientific Merchandising, Law, Publicity, Manufacture, Transportation, Accounting, Auditing, and kindred subjects. These courses are presented only by schools of commerce and finance, and are open to men employed in business. Such men as a result of their business experience have an appreciation of relative values, a knowledge of men and affairs, and are able to see the application of what they learn in school, and to work it out in their daily experience.

Schools of commerce and finance are of college grade, and offer the last word in the science of business administration.

Their graduates have a tremendous advantage over the ordinary business man by reason of the fact that they know what their associates know, and also the methods of thousands of other men who have contributed toward the data presented in the schools.

Precisely as the engineering profession has required the establishment and maintenance of schools of technology, and as law has called for law schools, medicine for medical schools, and so on through the entire realm of technical and professional life, so now business is calling for the establishment of schools which present the science of business technique in all its ramifications. These schools prevent the useless and constant waste of time and energy, due to faulty methods, and enable business administrators to safely guide their interests, confident that the methods employed are those found sound and reliable under all circumstances.

There is as much difference between the functions of a School of Commerce and Finance and the business college, or commercial high school, as between a grammar school and a university. The functions of the School of Commerce and Finance are, to prepare its students for the accountancy profession; or, for large administrative duties; or as business specialists; or for teaching; depending upon the course selected. It is not the purpose of this school to develop office clerks and bookkeepers.

The uninformed often confound the terms bookkeeper and accountant, and do not appreciate the broad qualifications required of a professional accountant. The following abstract from Bentley's "Science of Accounts" may serve to make this distinction clearer.

"Accounting is a general term which comprehends book-keeping, auditing, system building, etc., just as mathematics is a general term embracing arithmetic, algebra, geometry, trigonometry, etc. The term is used by many writers and

accountants of prominence as synonymous with bookkeeping. This use is incorrect.

“The popular conception of the meaning attaching to the terms bookkeeper, auditor and accountant is vague. A business man calls a person who keeps his books the ‘bookkeeper,’ and that is correct; but sometimes the same personage is dubbed ‘our accountant’, or ‘auditor’, and then the use of the term is usually far from correct.

“In the most general sense an accountant (earlier form ‘accompant’) is a person skilled in accounts. Used thus, the term is synonymous with bookkeeper. When, however, the terms bookkeeper, auditor and accountant are used with precision, there is a marked difference in meaning, based upon the degree of skill employed.

“A bookkeeper is a person who possesses a thorough knowledge of the principles of double entry bookkeeping, office routine, and kindred commercial subjects, and is capable of conducting properly a set of books for any business, after becoming familiar with the workings of the system in use.

“An auditor is a bookkeeper who, in addition to the usual bookkeeping knowledge, has acquired a thorough knowledge of auditing in theory and practice, and who is capable of conducting special investigations of accounting records of every nature. He requires a much more elaborate academic and commercial education than a bookkeeper, and must be practical and thorough in whatever he undertakes. He must be able to compile a report setting forth the results of his examinations and his comments thereon in clear and proper form.

“The most successful auditors possess unusual foresight, keen comprehension and are capable of exercising a high degree of diplomacy when necessary.

“Until a person has acquired the qualifications of an auditor, he is merely a bookkeeper or junior, serving his apprenticeship.

“An accountant is an auditor who is skilled as a designer of accounting systems, well versed in business organization and administration, and capable of devising and installing a system of accounts that exactly meets the requirements of a particular business, whether it be a bank, a mercantile or manufacturing establishment, or some other form of industrial enterprise.

“A designer of accounting systems to be thoroughly successful must be familiar with auditing requirements, else how can he design a system capable of being readily audited? The auditor fully understands what a system of accounts should reflect, but he need not necessarily be a systematizer in order to be a competent auditor. The systematizer must, however, be a practical auditor. This is more clearly understood when one considers that the system the accountant designs is a vehicle for conveying to the management, through the auditor, in the most economical and practical manner possible, the exact results of the business, properly classified, and the condition of affairs at the close of each month, quarter or half-year, as the case may be.

“The accountant must therefore be a bookkeeper, an auditor and a designer of accounting systems.

“There are comparatively few accountants, as such, in this country. The requirements are great, calling for a number of inherent qualities, such as an inventive mind, power of concentration, adaptability to practical conditions, an ability for clear and logical expression, diplomacy, dignity, etc.

“The work of the bookkeeper is largely routine. The work of the auditor is inspective and critical. The work of the accountant may embody the work of both the bookkeeper and the auditor, but in addition it is largely creative.”

TO THOSE WHO CONTEMPLATE ENTERING THE SCHOOL OF COMMERCE AND FINANCE

All applicants for admission to the School must present satisfactory evidence of good moral character, and be at least eighteen years of age.

Those who contemplate entering the School should bear

in mind that the broader his general training, and the more practical experience he has had, the greater will be the benefits derived from any of the courses of this School, all other things being equal.

All men are not temperamentally fitted for the accountancy profession. The Dean will be pleased to consult with those who are undecided as to which course they will take, with a view to assisting them in making the wisest decision.

A broad technical preparation in commercial subjects is the best equipment for a successful business career. This is the only evening school in New England where such preparation is available, and every young man employed in business, and every young man preparing to enter business, should take advantage of the opportunities offered.

It is extremely difficult and laborious to become a thoroughly competent professional accountant through practical experience alone. Valuable as is practical experience, it should be founded upon a broad technical preparation. Heretofore, accountants have been obliged to secure this preparation by studying the few authentic works available, and of necessity their progress has been slow and tedious. The establishment of a School of Commerce and Finance has made this preparation possible under favorable conditions, while the splendid opportunities in the comparatively new field of professional accountancy assure ambitious men who are fitted for the work, an opportunity to erect the super-structure in much less time than has been required heretofore.

The demand from practicing public accountants for junior and senior accountants, who are properly qualified, is greatly in excess of the supply. The same condition applies with respect to the demand from business establishments for properly qualified business specialists for various classes of positions. The best and broadest preparation for business is available to those who are employed during the day, through the courses offered by the School of Commerce and Finance.

COURSES OF INSTRUCTION

Four courses of instruction are offered in the School of Commerce and Finance.

- I. Professional Accountancy Course.
- II. General Business Course.
- III. Commercial Teaching Course.
- IV. Special C. P. A. Course.

The first three stated above are three-year courses, leading to the degree of B.C.S. The last one is a two-year course, especially designed for those who wish to prepare for the C. P. A. examination in the shortest time possible.

Professional Accountancy Course.

The object of this course is to prepare the student for the accountancy profession, by providing him with a broad, practical training in those subjects that are essential to the proper preparation of a professional accountant. This course fits the student to pass the C. P. A. examination, but that is a secondary feature; — the aim of the course being much higher than the fitting of students to pass such an examination. It is not a "cramming course" designed merely to coach students for a State examination. It is distinctly a professional course, having for its chief aim the best possible preparation for the accountancy profession, just as the chief aim of the Law School is to properly prepare students for the profession of law.

The high standard maintained is one of the distinctive features of the school.

For detailed schedule of subjects offered in this course see Page 26.

General Business Course.

The design of this course is to furnish the student with a broad, practical preparation for a general business career. It is not characterized by as much intensified technical work as the Professional Accountancy Course. Students may select from a list of electives that cover a wide scope, such subjects as best meet their requirements. These electives are confined to the second and third years, and no student who is a candidate

for the degree is permitted to elect a less number of subjects than will amount in the aggregate to twenty-one points.

There is a distinct advantage to be gained by taking this course, inasmuch as the instruction in technical subjects is given exclusively by practitioners of recognized ability, — each one a specialist in his respective line. There is a vast difference between instruction of such a character and the class of instruction given by theorists who have never practiced the technical subjects they attempt to teach. Instruction of this latter type usually results in the student having to unlearn much of what he learned, upon entering business; especially is this true if he is fortunate enough to secure a position that calls for a modern knowledge of accounting and business methods.

This course should especially appeal to those who desire to become specialists in business, — such as advertising manager, sales manager, purchasing agent, credit man, real estate broker, financial statistician, office manager, etc.

For detailed schedules of subjects offered in this course see page 27.

Commercial Teaching Course.

The School of Commerce and Finance offers to those who desire to become thoroughly capable teachers, a course that will prepare them to teach accounting and allied subjects in the most thorough manner so as to conform to modern practice.

By choosing the proper electives a student may prepare either for teaching in high schools, private commercial schools, or normal schools; or, he may prepare to teach accounting in colleges and universities, by electing the advanced subjects of accounting. There is a great demand for properly prepared commercial teachers, and the work is both pleasant and remunerative.

Those who are now teaching bookkeeping may take this course, and thus become equipped to teach any branch of accountancy.

For detailed schedules of subjects offered in this course see page 28.

Special C. P. A. Course.

This is a special two-year course, designed for those who are desirous of taking only accounting subjects and commercial law, and for those who wish to prepare to pass the C. P. A. (Certified Public Accountant) examination in the briefest time possible. This course will enable students to pass the examination as now given, and while permitted for the time being, it is not recommended.

Those who are now engaged, or who contemplate engaging, in professional accounting, and who desire to attend this School, are earnestly urged to take the regular three-year Professional Accountancy Course rather than the special two-year course, because the former affords a much broader preparation.

For detailed schedule of subjects offered in this course, see page 28.

MASTER OF COMMERCIAL SCIENCE

The degree of Master of Commercial Science (M.C.S.) may be conferred only upon those who hold the degree of Bachelor of Commercial Science, from this or another approved school of Commerce and Finance, who shall also have taken a one-year graduate course under the Faculty, passing examinations upon the subjects pursued. The candidate is permitted to elect, subject to the approval of the Faculty, the major and minor subjects he intends to pursue during the year. He is required to independently prepare a thesis which shall be approved by the Faculty before the degree is conferred.

Every candidate for the Master's degree must have his graduate course approved by the Faculty before registering for the course.

ADMISSION REQUIREMENTS

Any man of good moral character, eighteen years of age or over, regardless of his religious creed, may register for any course, or may select any group of subjects that do not conflict with the instruction programs, offered by the School of Commerce and Finance.

A knowledge of elementary bookkeeping is required from all who register for any one of the four complete courses offered. Those who do not possess this knowledge may acquire it by taking the Elementary Course in Bookkeeping, three nights per week (Monday, Wednesday and Friday), from August 1 to September 14.

Those desiring to take the Elementary Course in Bookkeeping should present themselves for registration at the Dean's office on or before August 1.

An entrance examination in elementary bookkeeping will be held on September 15 and 18. Those presenting themselves for this examination should possess a knowledge of the elementary principles of double entry bookkeeping. They should be familiar with the uses of the journal, cash book and ledger; how to post, compile a trial balance, and how to properly close the ledger. Such a knowledge can be easily acquired by taking the Elementary Course from August 1 to September 14.

A knowledge of elementary bookkeeping is not required of special students who register for other than accounting subjects.

A candidate for the degree must be a graduate of a high school, or possess an academic education equivalent thereto. One who has not the required educational preparation may secure the degree any time after graduation upon presenting satisfactory evidence that he has completed his academic preparation in the Association High School or any other accredited high school.

Students who are not candidates for the degree are known as "special students," and no special academic preparation is required from those registering as special students.

Every student shall, upon entering the School, elect the course or group, he will follow, subject to the approval of the Dean.

Seventy-seven points are required for graduation. A certain number of points are allowed for each subject (see pages 26, 27, 28 and 29).

Credit will be given for advanced standing in any subject, to be determined by such examinations as the Faculty may prescribe. Examinations for advanced standing will be given on September 20 and 21 and January 22 and 24.

The school year consists of 36 weeks. Each school week consists of seven and one-half hours of class study, and four and one half hours of outside preparation. Thus the minimum time required for each school year is 432 hours.

In order to secure satisfactory results it is necessary for students to devote the required time to outside preparation. The act of registering in the School of Commerce and Finance carries with it an implied agreement upon the part of the student to devote the necessary time to outside preparation. Any student whose work is not satisfactory to the Faculty may be requested to withdraw from the School, or to drop or repeat certain subjects, as the case may be.

TUITION FEES AND EXPENSES

Tuition for the Elementary Course in Bookkeeping is \$10, payable in advance. The expense for books and stationery is about \$3.

Tuition for any of the four regular courses is \$75 per year,— payable \$25 at time of registration, \$25 December 1st, and \$25 March 1st. The expense for books and stationery varies considerably according to the course, or group of subjects selected. It amounts to approximately \$12 per year.

Tuition fees for special students who do not take one of the regular courses, but who select one or more subjects from the elective groups, is based on the rate of \$20 per year for each subject taken. Students who select more than three subjects are required to pay the regular annual rate of tuition — \$75.

At the time of registering for the Elementary Course in Bookkeeping, the student is required to pay an additional \$5 to cover the membership fee in the Y. M. C. A. This amount is deducted from the first payment of \$25 required at the time of registering for any one of the regular courses. The annual

tuition fee for any one of the four regular courses includes the privileges of an educational membership in the Boston Y. M. C. A. for one year.

The tuition charged by other Schools of Commerce and Finance of college grade is from \$100 to \$150 per year as compared with \$75 charged by this school. This low fee, which includes all privileges except the gymnasium in the Y. M. C. A., is in line with the policies of the Association to provide the best possible instruction at a minimum cost.

Those who desire to secure employment in Boston in order to be able to attend the School of Commerce and Finance may secure assistance in procuring a position by addressing the Dean. The Dean's office will also assist students in finding desirable boarding places when requested.

EXAMINATIONS AND ADVANCEMENT

If at the end of any term in the classes leading to the degree, a student has not performed the required practice work in accounting subjects, his marks on advancement examinations may be withheld until the deficient work is made up. An unpassable mark on term work requires that the subject be repeated. An unpassable mark on an official examination requires that similar examinations be taken until a passable mark is attained.

Each instructor is required to furnish to the Dean, at the close of each term, two marks covering each subject taken by students whom he instructs. One mark shall represent his estimate of the term work completed. (Uncompleted term work must be marked as a deficiency.) The other mark shall represent the result of a written examination in each subject to be given at the close of each term. Tests may be given by instructors as frequently as they deem necessary, but the results do not become officially recorded. They may, however, influence the instructor's judgment of the student's term work. If both the term work and the official written examination result in low

marks, the Faculty may require the subject or subjects to be repeated.

A student shall not be graduated until he has received for every term the credits prescribed for that term. These credits consist of the required number of points, and of passable marks covering both term work and written examinations.

DESCRIPTION OF COURSES ACCOUNTING

Advanced Bookkeeping:

- a. Science of Accounts.*
- b. Bookkeeping Practice and Procedure.*

Students are required to pursue the above subjects in conjunction with one another, in order that the practical application of the former may be illustrated by the latter.

a. Science of Accounts.

This subject treats very exhaustively, the theory of book-keeping, including principles and definitions, the science of classification as applied to different businesses, the form and arrangement of financial statements, etc. It is designed to provide the student with a broad foundation upon which to build his practical knowledge, and to fit him to correctly answer all questions properly belonging under the head of the Theory of Accounts. The text book will be Bentley's "Science of Accounts."

b. Bookkeeping Practice and Procedure.

Students are required to write up various sets of books, each one representing a different kind of business, beginning with a moderately simple set and advancing to the complex sets found in manufacturing, commission, department store, real estate, and other businesses. The course provides thorough practice in making opening entries, recording all kinds of transactions common to the business under review, making adjusting entries, closing entries, locating errors in trial balances, reconciling bank balances, compiling balance sheets profit and loss statements, summarized statements of cash receipts and

disbursements, realization and liquidation accounts, analyzing a ledger, compiling special statistics, changing a set of books from single to double entry, changing a set of books from partnership to corporate form of doing business, the amalgamating of several independent sets of books into one main set for the holding company, etc. Students are required to make an analytical study of business forms, and to design various forms of bills, checks, notes, drafts, shipping invoices, requisitions, goods received slips, stock records, etc. They are given practice in writing up corporate records, such as stock certificates, stockholders' ledger, transfer record, stockholders' minutes, directors' minutes, etc. They are also given practice in keeping the accounts of receivers, executors and trustees, savings banks, national banks, etc. The works used in this course are—"Practical Accounting" by Bentley, and "Practical Accounting" by W. H. Dennis (consisting of the sets used in the New York University School of Commerce, Accounts and Finance). References: Railroad Accounting—Interstate Commerce Commission: Street and Railway Accounts—Public Service Commission of New York: Electrical and Gas Corporation Accounts—Public Service Commission of New York: Standard Classification of Construction and Operating Accounts for Electric Light and Power Companies—National Electric Light Association: Uniform System of Accounts for Gas Companies—American Gas Institute: Standard Telephone Accounts—American Telephone and Telegraph Company: Hospital Accounting and Statistics—New York Presbyterian Hospital: Text Book of the "Accountancy of Investment" Charles E. Sprague: "Business Forms" H. C. Bentley.

Office Routine and Business Methods.

This course consists of lectures and exhibits bearing upon modern office methods, the uses of office appliances and mechanical labor-saving devices, the fitting up of business offices, the arrangement of office equipment with a view to securing a maximum of efficiency with a minimum of space, and the organization and administration of an office staff. Different

filing systems will be discussed and demonstrated, and the most approved methods of filing will be explained.

Elements of System Building.

The object of this course is to teach the fundamental principles of system building as applied to all classes of business. The students are first taught the science and art of rulings. They are then required to design, from specifications furnished in a guide book, several complete sets of books, each one representing a different business: *e. g.*, retail lumber business, publishing business, small manufacturing business, and an installation furniture business, (the first and last two systems providing for monthly profits). For each set they are required to design all necessary forms, and to write a complete set of instructions for the conduct of the system—including a detailed description of the functions of each book and form, and of each ledger account employed in the general ledger. They are taught the standard size and grades of ledger papers, the different kinds of bindings, and the way to frame specifications for book making and form printing. Loose leaf binders are exhibited and explained, and their advantages and weak points are brought out in the discussions. This work is based on Bentley's "Elements of System Building," and Bentley's "Science of Accounts."

Elements of Cost Accounting.

The fundamental principles of cost accounting are taught in this course. The three elements of production are treated in relation to the "Shop Order" and "Process Method" of costing. Lectures are given on the organization and administration of factories, technical costing and factory terms are defined and explained, and the different methods of distributing overhead expenses are taught. Various costing problems are worked out by the students. References: "The Proper Distribution of Expense Burden" by Church, "Production Factors" by Church, "Manufacturing Accounts" by Eddis and Tindall, "Cost Finding" by Webner, and the "Science of Accounts" by Bentley.

Elements of Auditing.

This course covers the elementary principles of Auditing in theory and practice. Elementary principles are taught through lectures, illustrations, and assigned reading. Graded practice is provided by having students audit several simple sets of books, by following, in each case, a detailed program. All working papers are required to be made in proper form, and an audit report covering each audit is compiled by the students, in accordance with the form and arrangement shown in model reports furnished to them. The basis of this course is Bentley's "Elements of Auditing."

Advanced System Building.

This course is a logical continuation of the Elements of System Building, and consists almost entirely of practice work. Several intricate accounting systems, each one representing a different kind of business, are designed by the students. The technique of these businesses are fully explained, and the student is provided in each case with the information that would be ordinarily required by an accountant if called upon to design an accounting system for a business with which he is not familiar. From this information, and from the result of the student's individual research, they are required to prepare a set of instructions for the conduct of each system designed. Students are requested to do this work independently, but may discuss any matters relating thereto with the instructor, or committees appointed by the instructor.

Advanced Cost Accounting.

This course consists of advanced problems in cost finding, the compilation of production statements, the study of factory organization and administration, special lectures by cost accountants, and assigned reading. Students are required to design a complete cost system, and prepare a set of instructions for its conduct, as the final test of efficiency in this course.

Advanced Auditing.

The first part of this course consists of lectures on auditing as applied to various classes of business, some of which will be

delivered by well-known practicing accountants who specialize on certain lines. Students are required to study such works as "Dicksee's Auditing," and a systematic series of class discussions will be conducted, bearing upon various phases of auditing. Papers read before the American Association of Public Accountants during the past several years will be read and discussed. Each student is required to prepare a certain number of audit programs, each one covering a different kind of business. Questions on Auditing set by different State C. P. A. Boards will be assigned for study and discussion.

The last part of the course will be devoted to practice in performing audits, conducting special investigations, etc. Special attention will be given to the form and arrangement of audit reports.

Advanced Accounting Problems.

This course deals with practical accounting problems, such as are given in C. P. A. Examinations, by different C. P. A. Examining Boards, under the heading of "Practical Accounting". The text book for this course will be "Accountancy Problems", by Greendlinger.

COMMERCIAL LAW
FIRST-YEAR COURSE

1. Contracts. (18 lectures)

All the main topics are treated, including among others: How contracts arise; who may be parties and who are not bound under contracts; the various kinds of considerations; contracts that are void for illegality, fraud or other reasons; effects of various kinds of contracts; written and verbal contracts, and law of evidence as applied thereto; how contracts are construed; the Statute of Frauds and what contracts are void under that statute; how parties may terminate contracts, and what events terminate them without any act of the parties; when specific performance of contracts may be enforced; actions for damages for breach of contracts and what damages may be obtained.

2. *Agency.* (9 lectures)

Under Agency will be treated: How an agency may arise; contracts of agency; agency of wife and children; agency arising by ratification or estoppel; what parties may be principals and agents; the effects of agency and study of agents' rights and duties in various commercial and business situations; how agencies may be terminated and what agencies cannot be revoked; suits of agents or employees for breach of contract; etc.

3. *Partnerships.* (9 lectures)

Sharing of profits and losses, firm name and books of accounts; rights of partners as to management; rights of creditors against firm and partners; ownership of firm property; silent and dormant partners; commercial paper of firm; accounting by partners; contributions of capital and loans to the firm; termination of firm; death, insanity, fraud or withdrawal of partner; liquidation of assets; bankruptcy of firm; limited partnerships.

SECOND YEAR COURSE

1. *Corporations.* (18 lectures)

Various kinds of corporations; formation of corporations; charter, by-laws, capital stock; stockholders' and directors' meetings; election of officers; corporate bonds and mortgages, and commercial paper; rights of minority stockholders; voting trusts; corporate books; rights of creditors; directors' and stockholders' liability; revocation of charter; dissolution of corporation.

2. *Sales.* (9 lectures)

Main topics; sale of personal property; contracts and memoranda of sales; immediate and future sales; sale of property to be manufactured; when sales may be set aside; selection of goods, fixing of price, time of delivery; shipments of goods, and rights and duties of consignor, consignee and carrier; bills of lading and stoppage and loss in transit; warranties of goods, sales by sample, by description, C. O. D.,

on approval, etc.; storage of goods, rights and duties of warehouseman, houseman or against buyer or seller of goods.

3. *Negotiable Instruments.* (9 lectures)

Negotiable or Commercial Paper; what are valid negotiable instruments and what instruments are not negotiable; forms of bills, notes, drafts and checks; makers, payees, endorsers, etc., of negotiable paper; acceptance of drafts and certification of checks; suits on negotiable paper; defenses to such suits, usury, forgery, theft, raising, illegal debts, alterations, infancy, prior payment, etc.; partnership and corporation paper; demand paper and bearer instruments; indorsers and when they are discharged; accommodation indorsers and indorsers after maturity; rights of indorsers paying paper; holders for value and in due course; presentment for payment, notice of dishonor, notice of protest, etc.; certificates of deposit; bonds, coupon and registered; certificates of stock; bills of lading, warehouse receipts, etc.

THIRD YEAR COURSE

1. *Real Estate Law.* (18 lectures)

Including division of property; things in possession, things in expectation, chattels, releases, real property; feudal system, easement, public easement, private easement, whether party walls, air; division of estates; estates of Freehold, estates in fee, estates for life; estates less than Freehold, estates for years, estates at law, estates by sufferance; estates in revision as remainder; joint interests in estates, estates in joint tenancy, estates in common; uses and trusts, executed and executory trusts, expressed trusts, implied and resulting trusts, purposes for which trusts may be created; methods of acquiring titles to real property; title by descent; rule of descent; title by marriage; title by deed, deed defined, delivery of different kinds.

2. *Bankruptcy Law.* (9 lectures)

Including course in bankruptcy and their jurisdiction. Acts of bankrupt; who may become bankrupt; exemptions of bankrupts, duties of bankrupts; death or insanity of bank-

rupts; suits by and against bankrupts; composition discharges, debts not affected by discharge; reference of cases after adjudication; referee's and trustee's powers and duties; compensation, bankruptcy, voluntary and involuntary.

3. *Law of Bailments.* (9 lectures)

Definition; essentials; classification; naked deposit, commission, loan for use; pledge; hire for reward, degrees of diligence and negligence; bailment for sole benefit of bailor; bailment for sole benefit of bailee; liability of bailee for bailors; bailment for benefit of both bailor and bailee; carriers for hire, common carriers, relation of carrier to goods; delivery to it for transportation; who may appoint carrier for contracts for shipments; carriers of passengers.

PRINCIPLES OF ECONOMICS

FIRST YEAR

The aim of this course will be to give an introduction to the fundamental principles underlying economic activity. *Value* and *Price*, and the *Production* and *Distribution* of Wealth will be taken up and analyzed. Such topics as land, labor and capital on the side of production, and rent, wages, interest and profits on the side of distribution will be discussed and the instructor will endeavor to point out the fundamental economic laws governing the supply of these factors of production and their rewards in distribution.

The second half of the course will consist of the application of economic law and theory to practical problems of the political and business world. The incidence of taxation, international trade, the single tax, protection and free trade, Socialism and other topics will be taken up and discussed in the light of economic theory and a study of the facts of the respective topics.

The course will be conducted partly by lectures, partly by class room discussion. Reading will be assigned in the various topics and in addition one of the standard books on economic theory will be used as a text.

Second and Third Years.

As the second and third year courses are not to be given during 1911-12, the outline of these courses is omitted in this catalogue.

SPECIAL LECTURES

A series of special lectures bearing upon each of the topics stated hereunder will be delivered by prominent specialists. The dates of these lectures and the names of the lecturers will be bulletined at the proper time.

Accounting

Municipal

Railroad

Executors

Brokers

The Audit of a Savings Bank

The Audit of Fire Insurance Company

The Audit of a Life Insurance Company

The Audit of a Trust Company

What An Unqualified Certificate Should Stand For

The Verification of Inventories

History of Accountancy

The Administration of an Accountant's Office

PROGRAM OF COURSES

PROFESSIONAL ACCOUNTANCY COURSE

FIRST YEAR

Subjects	Points	1st Term		2nd Term		Total Hours	
		Class Hrs. per wk.	Outside Hrs. per wk.	Class Hrs. per wk.	Outside Hrs. per wk.	Class	Outside
Advanced Bookkeeping	12	5	2	2½	2	135	72
Elements of Auditing	3	—	—	2½	—	45	—
Commercial Law	5	1½	1	1½	1	54	36
Principles of Economics	5	1	1½	1	1½	36	54
Totals	25	7½	4½	7½	4½	270	162

SECOND YEAR

Subjects	Points	1st Term		2nd Term		Total Hours	
		Class Hrs.	Outside Hrs.	Class Hrs.	Outside Hrs.	Class	Outside
Elements of Cost Accounting	3	2½	—	—	—	45	—
Advanced System Building	5	2½	2	—	—	45	36
Advanced Cost Accounting	5	—	—	2½	2	45	36
Elements of System Building	3	—	—	2½	—	45	—
Commercial Law	5	1½	1	1½	1	54	36
Applied Economics	5	1	1½	1	1½	36	54
Totals	26	7½	4½	7½	4½	270	162

THIRD YEAR

Subjects	Points	1st Term		2nd Term		Total Hours	
		Class Hrs.	Outside Hrs.	Class Hrs.	Outside Hrs.	Class	Outside
Advanced Auditing	4	2½	—	1	—	63	—
Advanced Accounting Problems	9	2½	2	2½	2	90	72
Commercial Law	5	1½	1	1½	1	54	36
Applied Economics	7	1	1½	2½	1½	63	54
Totals	25	7½	4½	7½	4½	270	162

Note. For schedule of elective subjects see page 29.

For description of all subjects offered by the School see pages 18-26.

GENERAL BUSINESS COURSE

FIRST YEAR

Subjects	Points	1st Term		2nd Term		Total Hours	
		Class Hrs.	Outside Hrs.	Class Hrs.	Outside Hrs.	Class	Outside
Advanced Bookkeeping	12	5	2	2½	2	135	72
Elements of Auditing	3	—	—	2½	—	45	—
Commercial Law	5	1½	1	1½	1	54	36
Principles of Economics	5	1	1½	1	1½	36	54
Totals	25	7½	4½	7½	4½	270	162

SECOND YEAR

Subjects	Points	1st Term		2nd Term		Total Hours	
		Class Hrs.	Outside Hrs.	Class Hrs.	Outside Hrs.	Class	Outside
Elements of Cost Accounting	3	2½	—	—	—	45	—
Elements of System Building	3	—	—	2½	—	45	—
Commercial Law	5	1½	1	1½	1	54	36
Applied Economics	5	1	1½	1	1½	36	54
Bus. Organization & Administ'n	3	1½	1	—	—	27	18
Electives	7	1	1	2½	2	63	54
Totals	26	7½	4½	7½	4½	270	162

THIRD YEAR

Subjects	Points	1st Term		2nd Term		Total Hours	
		Class Hrs.	Outside Hrs.	Class Hrs.	Outside Hrs.	Class	Outside
Commercial Law	5	1½	1	1½	1	54	36
Applied Economics	7	1	1½	2½	1½	63	54
Electives	14	5	2	3½	2	153	72
Totals	26	7½	4½	7½	4½	270	162

Note. For schedule of elective subjects see page 29.

For description of all subjects offered by the School see pages 18-26.

COMMERCIAL TEACHING COURSE
FIRST YEAR

Subjects	Points	1st Term		2nd Term		Total Hours	
		Class Hrs.	Outside Hrs.	Class Hrs.	Outside Hrs.	Class	Outside
Advanced Bookkeeping	12	5	2	2½	2	135	72
Elements of Auditing	3	—	—	2½	—	45	—
Commercial Law	5	1½	1	1½	1	54	36
Principles of Economics	5	1	1½	1	1½	30	54
Totals	25	7½	4½	7½	4½	270	162

SECOND YEAR

Subjects	Points	1st Term		2nd Term		Total Hours	
		Class Hrs.	Outside Hrs.	Class Hrs.	Outside Hrs.	Class	Outside
Elements of Cost Accounting ..	3	2½	—	—	—	45	—
Elements of System Building ..	3	—	—	2½	—	45	—
Commercial Law	5	1½	1	1½	1	54	36
Applied Economics	5	1	1½	1	1½	36	54
Bus. Organization & Administ'n	3	1½	1	—	—	27	18
Electives	7	1	1	2½	2	63	54
Totals	26	7½	4½	7½	4½	270	162

THIRD YEAR

Subjects	Points	1st Term		2nd Term		Total Hours	
		Class Hrs.	Outside Hrs.	Class Hrs.	Outside Hrs.	Class	Outside
Commercial Law	5	1½	1	1½	1	54	36
Applied Economics	7	1	1½	2½	1½	63	54
Electives	14	5	2	3½	2	153	72
Totals	26	7½	4½	7½	4½	270	162

Note. For schedule of elective subjects see page 29.

For description of all subjects offered by this School see pages 18-26.

SPECIAL C. P. A. COURSE

FIRST YEAR

Subjects	Points	1st Term		2nd Term		Total Hours	
		Class Hrs.	Outside Hrs.	Class Hrs.	Outside Hrs.	Class	Outside
Advanced Bookkeeping	12	5	2	2½	2	135	72
Elements of Auditing	3	—	—	2½	—	45	—
Elements of Cost Accounting ..	3	1	1½	—	—	18	27
Commercial Law	8	1½	1	2½	2½	72	63
Totals	26	7½	4½	7½	4½	270	162

SECOND YEAR

Subjects	Points	1st Term		2nd Term		Total Hours	
		Class Hrs.	Outside Hrs.	Class Hrs.	Outside Hrs.	Class	Outside
Elements of System Building ..	3	2½	—	—	—	45	—
Advanced Auditing	3	2½	—	—	—	45	—
Advanced Accounting Problems ..	11	1½	2	5	2	117	72
Commercial Law	9	1	2½	2½	2½	63	90
Totals	26	7½	4½	7½	4½	270	162

Note. For schedule of elective subjects see page 29.

For description of all subjects offered by this School see pages 18-26.

ELECTIVE SUBJECTS SECOND YEAR

Subjects	Points	1st Term		2nd Term		Total Hours	
		Class Hrs. per wk.	Outside Hrs. per wk.	Class Hrs. per wk.	Outside Hrs. per wk.	Class	Outside
Advanced System Building	5	2½	2	—	—	1	45
Advanced Cost Accounting	5	—	—	2½	2	45	36
Bus. Organ. & Administration	3	1½	1	—	—	27	18
Financing Enterprises	2	1	1	—	—	18	18
Industrial Geog. of the U. S. . . .	2	—	—	1	1	18	18
Commercial English	3	—	—	1½	1	27	18
Real Estate	2	1½	—	—	—	27	—
Salesmanship	5	—	—	2½	2	45	36
Financial Markets	2	1	1	—	—	18	18

THIRD YEAR

Subjects	Points	1st Term		2nd Term		Total Hours	
		Class Hrs. per wk.	Outside Hrs. per wk.	Class Hrs. per wk.	Outside Hrs. per wk.	Class	Outside
Advanced Auditing	3	2½	—	1	—	63	—
Advanced Accounting Problems	9	2½	2	2½	2	90	72
Industrial Hist. of the U. S. . . .	2	1	1	—	—	18	18
Principles of Investment	2	—	—	1	1	18	18
The Credit Man and His Duties . . .	2	1	1	—	—	18	18
Purchasing Agent and His Duties . .	2	—	—	1	1	18	18
Banking and Brokerage	3	1½	1	—	—	27	18
Insurance	3	—	—	1½	1	27	18
Factory Organ. & Management . . .	3	—	—	1½	1	27	18
Commercial Pedagogy	5	—	—	2½	2	45	36
Advertising	3	1½	1	—	—	27	18

Note. No class of less than ten students will be conducted in an elective subject.

(Chapter 399, Acts of 1909, as Amended by Chapter 81, Acts of 1911)

AN ACT TO PROVIDE FOR THE REGISTRATION OF PUBLIC ACCOUNTANTS

Be it enacted, etc., as follows:

Section 1. The bank commissioner shall have charge of the registration of public accountants, shall make such rules as are necessary to carry out the provisions of this act, and shall keep a record of all certificates issued hereunder, a duplicate of which shall be open to inspection in the office of the Secretary of the commonwealth.

Section 2. The said commissioner shall examine any citizens of the United States resident in the commonwealth and not less than twenty-one years of age, who may apply for such a certificate, shall investigate his character and fitness and shall require the payment of such a reasonable and fixed fee, not exceeding twenty-five dollars, as may be necessary in his opinion to carry out the provisions of this act.

Section 3. Any applicant whom said commissioner deems to have the necessary qualifications and professional ability shall be registered as a public accountant, and shall receive a certificate thereof, good for one year from its date. Said certificate may be renewed from year to year upon the payment of five dollars for each renewal. Said commissioner shall have power, after notice and hearing, to suspend or revoke for good cause any certificate issued by him.

Section 4. Any person who falsely represents himself to be a public accountant registered under the provisions of this act, shall be deemed guilty of a misdemeanor, and shall be punished by a fine not exceeding five hundred dollars, or by imprisonment for a term not exceeding six months, or by both such fine and imprisonment.

Section 5. This act shall take effect on the first day of October in the year nineteen hundred and nine.

(Approved May 17, 1909)

(Chapter 263, Acts of 1910)

AN ACT RELATIVE TO PUBLIC ACCOUNTANTS

Be it enacted, etc., as follows:

Section 1. Public accountants who have been or may be registered under the provisions of Chapter three hundred and ninety-nine of the acts of the year nineteen hundred and nine shall be entitled to style themselves "Certified Public Accountants."

Section 2. The fees received from applicants for registration as public accountants shall be used, so far as may be needful, for the payment of expenses incurred in carrying out the provisions of said chapter three hundred and ninety-nine.

Section 3. This act shall take effect upon its passage.

(Approved March 22, 1910)

DEPARTMENT OF SOCIAL WORK

DAVID M. CLAGHORN, Director

The attention of members is called to the many opportunities in the Association for social service, and the following features among others;

A Newly Equipped Game Room

The Popular Novel Club

The Association Congress

The Land and Water Club

DEPARTMENT OF EMPLOYMENT

FREDERICK W. ROBINSON, Director

The Employment Department is, in actual practice, a clearing house for young men seeking work, and employers who wish to engage reliable help. From 5000 to 8000 men apply every year. Members of the Association are given 25 per cent discount from the legal rates and special effort is made to notify them when good positions are open.

BOYS' DIVISION

DON S. GATES, A. B., City Sec'y

The physical, social, employment and religious advantages offered to boys from twelve to eighteen years, are similar to those offered to men as stated above. Membership dues for the boys range from one to six dollars according to the privileges desired. Boys' work is also organized in Roxbury.

DEPARTMENT OF PHYSICAL WORK

ALBERT E. GARLAND, M.D., B.P.E., Director

The Physical Department is under the best supervision and the aim is to better fit men for their life work by increasing their efficiency through exercise. The Gymnasium Ticket (\$10.00 annually) includes all the privileges of the regular and educational tickets and the use of two good gyms: M. I. T. Gymnasium, Garrison Street, and the Y. M. C. A. Gymnasium, 8 Ashburton Place. Numerous classes the year round. Shower, steam and electric baths. Best instruction. Medical direction. Hand ball courts. Basket ball, baseball, and athletics.

DEPARTMENT OF RELIGIOUS WORK

EDWIN W. PEIRCE, Director

Although mental training makes a young man keen, and physical exercise will make him agile and strong; yet, without the additional moral and spiritual development secured through knowledge of the principles of life laid down by the Great Teacher and striving to make them his own, his career may be a complete failure.

The Association therefore, advises each member in planning his winter schedule to arrange to take advantage of one or more of the following special features:—

Bible Study, Sunday Meetings of Men, Personal Service Groups, and The Twenty-Four-Hour-A-Day Club.

(Ask for Bible Institute catalog and other printed matter.)

ASSOCIATION INSTITUTE

BULLETIN

OF THE

POLYTECHNIC SCHOOL

1911-12



Co-Operative Engineering Courses

Earning While Learning

BOSTON, MASSACHUSETTS

Published by the Young Men's Christian Association

1911

CALENDAR

1911-1912

July 10	Practical work commences
September 25	School work opens
September 25	Second division of practical work starts
October 12	Columbus Day (No school exercises)
November 30	Thanksgiving Day (No school exercises)
December 23-31	Christmas Recess
February 22	Washington's Birthday (No school exercises)
April 19	Patriots' Day (No school exercises)
May 30	Decoration Day (No school exercises)
June 8	Close of school year

EDUCATIONAL COMMITTEE

JOHN E. ROUSMANIERE, Chairman	
WILLIAM E. MURDOCK	JOHN SHEPARD
ALBERT H. CURTIS	D. CHAUNCEY BREWER

OFFICERS OF ADMINISTRATION

ARTHUR S. JOHNSON, President	
GEORGE W. MEHAFFEY, General Secretary	
FRANK P. SPEARE, Educational Director	
GALEN D. LIGHT, A.B., Supt. Evening Schools and Bursar	
OLIVER T. NOON, S.B., EDUCATIONAL SECRETARY	
HERCULES W. GEROMANOS, S.B., Dean	

ADVISORY COMMITTEES

Architecture

CHARLES H. RUTAN, Shepley, Rutan & Coolidge
IRA G. HERSEY, President of the Master Builders' Association
HENRY H. KENDALL, Kendall, Taylor & Stevens

Mathematics

PROF. B. C. PIERCE and PROF. H. E. CLIFFORD of Harvard University
PROF. F. H. BAILEY, Massachusetts Institute of Technology

Mechanical Engineering

PROF. GAETANO LANZA, C.E., Head of the Department of Mechanical Engineering, Massachusetts Institute of Technology
HOWARD L. COBURN, S.B., Mechanical Engineer

Structural Engineering

GEORGE F. SWAIN, Professor Civil Engineering, Harvard University
J. PARKER SNOW, Chief Engineer, Boston & Maine Railroad
MAURICE F. BROWN, Chief Engineer, Boston Bridge Works

Chemistry

HENRY P. TALBOT, Professor of Chemistry, Massachusetts Institute of Technology
ARTHUR D. LITTLE, Consulting Chemist, A. D. Little Co., Inc.

The following gentlemen have agreed to act in an advisory capacity on the more important executive matters of the school where their service can be of the greatest value to us.

DR. RICHARD MACLAURIN, President of Massachusetts Institute of Technology
CHARLES A. PROSSER, Deputy Commissioner of Education of Massachusetts
JAMES P. MONROE, Executive Director of "Boston 1915"
WILLIAM MCKAY, General Manager, New England Gas & Coke Co.
PAUL WINSOR, Chief Engineer, Boston Elevated Railway Co.

FACULTY

H. W. GEROMANOS, Dean

ROYALL D. BRADBURY, S.B., Concrete Construction
CHARLES H. RESTALL, S.B., Railroad Engineering
JOHN W. HOWARD, S.B., Surveying
CARL S. ELL, Surveying
EARL FERRY, Applied Mechanics
JAMES A. COOK, Descriptive Geometry and Applied Mechanics
H. W. GEROMANOS, S.B., Physics and Chemistry
HAROLD S. GRAVES, Mechanical and Machine Drawing
IRA A. FLINN, PH.B., A.M., Mathematics
L. C. COOPER, Mechanism and Machine Design and Mechanical Engineering Drawing
WILLIAM L. SMITH, S.B., Electrical Engineering
A. K. WESTERVELT, Mechanical and Machine Drawing
FREDERICK C. HOSMER, English
THOMAS E. PENARD, S.B., Mathematics
JAMES BROUGH, Freehand Drawing, Industrial Design and Lettering
GEORGE A. TRUELSON, Architecture
CLARENCE E. EBERT, Mathematics
ELWOOD B. SPEAR, A.B., Ph.D., Chemistry
J. F. NORTON, Ph.D., Chemistry
A. L. CHESLEY, Chemistry

At the time of going to press our annual election of instructors for the coming year has not been held, and so it is impossible to publish the complete list of the faculty for 1911-1912.

GENERAL INFORMATION

It is generally conceded that, where the practical and theoretical forms of education can be taught simultaneously, the greatest good is derived by the student, and an effort is being made in all departments of education to accomplish this greatly desired end.

Technical school instruction, requiring shops, factories and general equipment, is prohibitive because of the tremendous cost. When, however, the actual factory, or shop, and the school can unite their efforts, this required end is accomplished in the most satisfactory manner.

The papers are full of suggestions along this line, and it is with extreme satisfaction that the Association Institute authorities are able to announce that for two years such a school has been in operation by the Young Men's Christian Association, and that it has more than met their most sanguine expectations.

Not only have the school authorities been much gratified with the interest of the students and the progress they have made, but the employers of these young men have been most emphatic in their endorsement of the plan in its bearing upon skilled technical ability.

The following catalog relating to the work will be read with marked interest by all those interested in this modern type of education.

In September, 1909, the Co-Operative Engineering School of the Association Institute was opened, and from the start has proved that it filled a need in our Educational System which was being met by no other school.

When a boy is graduated from a high school he has two roads from which to choose, one leads to a higher institution of learning, the other, which is taken by far the greater number, leads to business pursuits.

But the boy entering business after a high school career, is at once confronted by the fact that, while his education has broadened his view and given him general culture, it has not fitted him for any specific position in any particular line, or occupation. Consequently, he must begin work at the bottom of the ladder, and it may be years before he

mounts even a few of the rounds. After being at work for a time, the ambitious young man sees that if he is going to get ahead at all, he must know more of those subjects which bear directly upon his occupation. To give such young men an opportunity to get a limited, but complete, training of technical school grade in those lines which bear directly upon their daily employment, is the function of our Co-operative School.

Results

For the Student

A good technical education

Practical experience beyond the reach of the average.

Opportunity to earn the expenses of his education.

Training that should enable him to advance rapidly.

Increased earning power.

For the Manufacturer

Men especially and thoroughly trained for his work.

Employees who can, and will, think.

Men, who, because of theoretical as well as practical education, will be progressive and interested in their work.

A young man taking one of our four years' courses will find that at the end of that time he has obtained a thorough training in the practical side of his employment, as well as a good education in the theoretical points, and thus cannot help rising above the plane upon which he would otherwise find himself.

The plan in brief is to operate a part-time school in co-operation with business firms which employ our students in pairs, each one working alternate weeks and receiving so much per hour for his services while so employed, the earnings from this source being sufficient to defray all expenses of his education.

The school has about completed the second year of its existence, and has been successful from all points of view. The students have worked hard and faithfully at school, and we have received most satisfactory reports from their employers as to their progress in the duties of their practical work. In both places, they have evinced the most praiseworthy desire to obtain all the knowledge possible. One

very interesting feature has been the high percentage of attendance at the school throughout the two years, which alone speaks volumes for the attitude of the pupils.

Object of the School

The aim of this school is to fit young men for positions higher than they could expect to attain without further education than that of a high school course, but who are not financially able to obtain a technical school, or college, training. The work is not in any sense that of a trade school, nor is it exactly that of the highest grade scientific school, but it stands between the two. The work done is that of a regular technical school, but only the essential subjects are taken, and they, only so far as they will have a direct bearing on the life work of the student. In other words it is a limited technical training. The fact that many of the men on our teaching staff are graduates of, or instructors in the Massachusetts Institute of Technology, is a practical guarantee that the work done will be of scientific school grade and character. To illustrate the idea of the curriculum at the school, take, for instance, the case of a young man "A" who desires to take our Mechanical Engineering course.

Plan of Work

"A" is assigned to one of the plants of a manufacturer who is co-operating with us. Here he is to be put to work and spends that week working in the shop. The next week, "B" his mate, who has spent the first week in study, takes "A's" place in the shop, and "A" puts in the week at school. Thus the work goes on, the two men exchanging places at the beginning of each week. The studies pursued in the course have a direct practical bearing on the outside work, with the exception of a few courses added, because of the aim which we have, to produce a better citizen as well as a better employee. The courses given have been decided upon after conference between the manufacturers and the school authorities, and are the result of the best ideas of both. The subjects are taught in a practical, not in an abstract, or a theoretical way. Thus, in mathematics, instead of teaching algebra,

analytic geometry and calculus as so many separate subjects, they are correlated and taught as instruments for the solution of practical problems arising in engineering work. The aim throughout the course is to give it practical bearing and yet to have it complete and thorough in all the essentials.

Correlation of Practical and Theoretical Work

The outside work of the student is as carefully planned as that at the school, and it is progressive. The manufacturers who co-operate with us agree to employ the boys in all the different departments of their establishments during their periods of practical duties; this training is just as complete as the school work and is just as thorough. Where possible, the course of the learner is from the handling of the raw material to the shipment of the finished product. This practical training includes the use of the machines as well as the executive work of the plant, so that at the end of his course the graduate may not only know how to do things, but also why they are done in certain ways, and he may, we hope, be of value in improving methods of work. The following firms are co-operating with us at the present time and giving employment to our students: —

Boston Elevated Railway Co.

Boston and Albany Railroad Co.

 Mechanical Engineering Department

 Civil Engineering Department

Boston & Maine Railroad Co.

 Mechanical Engineering Department

 Civil Engineering Department

Boston Consolidated Gas Co.

Aspinwall and Lincoln, Civil Engineers

New York, New Haven & Hartford Railroad Co.

Boston & Northern Street Railway Co.

 Civil Engineering Department

 Mechanical Engineering Department

Edison Illuminating Co.

A number of other firms have already agreed to co-operate with us, while several more have our plan under consideration.

Below are typical schedules of practical work that have been prepared for our students by some of the companies which are giving our boys employment:

BOSTON ELEVATED RAILWAY CO.

First Year

Six months, pit work in carhouse. Six months, armature room.

Second Year

Twelve months, machine shop work.

Third Year

Six months, mechanical drafting room. Six months, power station work.

Fourth Year

Six months, line department. Six months, electrical engineer's department.

BOSTON CONSOLIDATED GAS CO.

Nine months, data takers

Three months, office

Three months, pipe fitters' helpers

Three months, pump man's helpers

Three months, blowers and exhausters

Three months, laboratory

Three months, valve room

Three months, generator house

Three months, steam fitters

Three months, machine shop

Three months, assistant engineers

Three months, engineers

Six months, laboratory

NEW ENGLAND GAS & COKE COMPANY

Four months, bag wagons

Four months, boilers and engine room

Four months, machine shops

Two months, pipe fitters

Two months, carpenters
Two months, laboratory
Six months, batteries
Two months, condenser house
Two months, coke crusher
Four months, cable roads
Four months, towers
Three months, ammonia house
Three months, shipper's office
Two months, time office
Two months, Laboratory
Two months, general office

BOSTON & MAINE RAILROAD COMPANY

Six months, air brake shops
One year, erecting work
One year, machine shop
One year, engine house repairs
Six months, drafting room and testing work

The above programmes show what the boys do in their practical work, and the courses of study pursued at the school show what they do along academic lines. It will be seen that there is a considerable degree of correlation between theory and practice in the work they take up. The men, under whose supervision the boys have been in their outside work, are practically unanimous in approval of our plan, and speak highly of the enthusiasm, earnestness and intelligence the students have shown in the performance of their duties.

All the concerns which co-operated with us the first year, took one, or more, additional pairs of our students this year, which in itself is significant of their attitude toward our plan.

Earnings

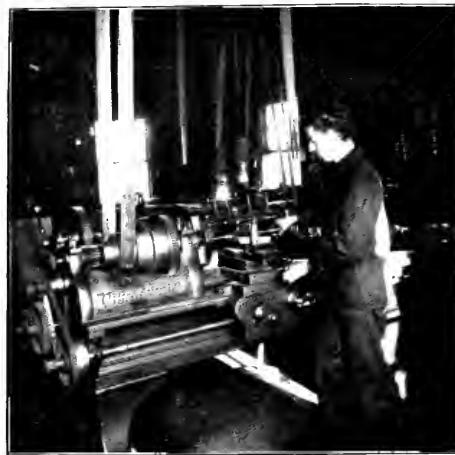
For the practical work the student does he is paid a certain amount per hour at the start, and a definite increase per hour after completing fixed periods of service. The sum earned is more than enough to pay



TAKING LEVELS FOR A CROSS SECTION
Weymouth Landing
Aspinwall and Lincoln, Civil Engineers



TAPING A FIELD COIL
Armature Shop
Boston Elevated Railway Company



MACHINE WORK
Air Brake Shop
Boston and Maine Railroad

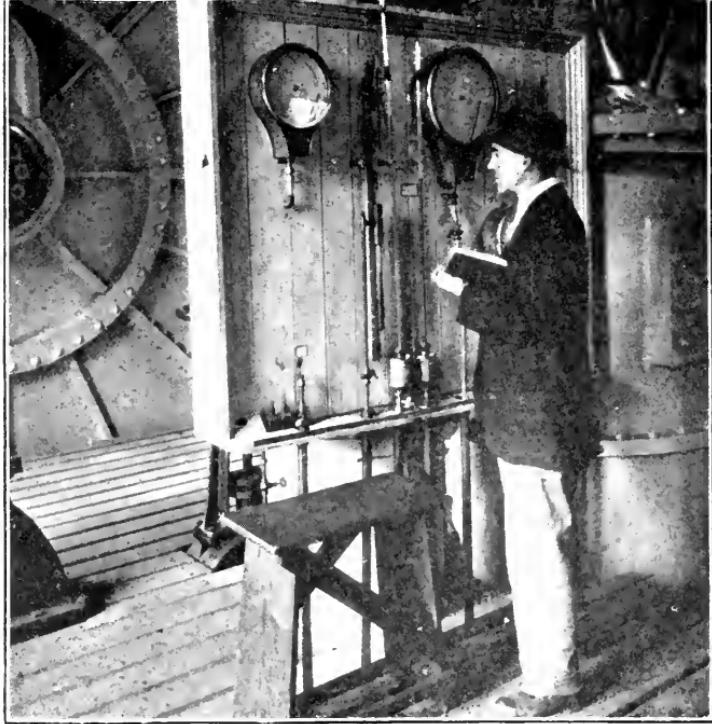


DETERMINING THE CANDLE POWER OF GAS
Everett Works
Boston Consolidated Gas Co.

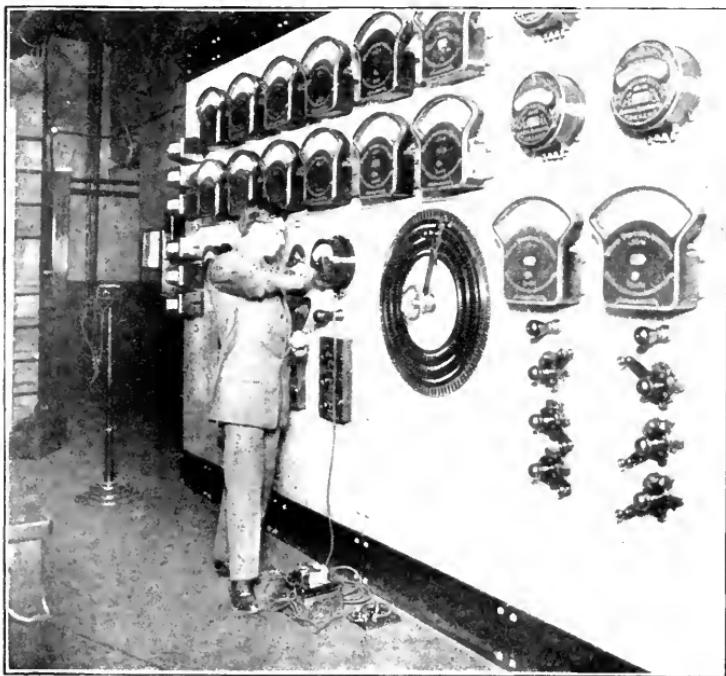
CO-OPERATIVE STUDENTS AT WORK



FIELD PRACTICE LEVELLING
Survey class



READING GAUGES
Everett Works
Boston Consolidated Gas Co.



CHECKING VOLTMETERS
Head Place Station
Edison Electric Illuminating Company

the tuition and the necessary expenses of schooling, but will not cover the cost of living. Should a student wish to pay his living expenses also, it possibly could be arranged for him to work every day and spend his evenings taking the course in the Evening School. The time for completion of the course under these conditions would probably be extended to six years instead of four as is required in the day school. Students desiring to earn expenses, both of living and school, may receive the assistance and co-operation of our employment department.

Expenses

The earnings of the students average from \$150 to \$200 a year while their entire expense for school and membership in the Y. M. C. A. is \$100, thus leaving a considerable balance for incidentals.

Relation of the School to High Schools

This school is peculiarly adapted to the high school graduate, who, although unable to continue his studies further, still has the ambition and ability to get ahead if given the opportunity. Thus boys, being graduated from high school, can still live at home but spend their time in fitting themselves for something better in the future.

Courses offered

So far courses have been arranged in Mechanical, Civil, Electrical, and Chemical Engineering, but as soon as there is the demand, courses in other subjects will be given. For the present, the student may have to pursue one of his studies in the Evening School, since the size of the day school does not justify us in having a full corps of instructors putting in their full time. As soon as we are able, the work will be done entirely in the day school.

Physical Training

Provision is made for giving gymnasium instruction to all who desire it. There is no additional expense for this, as the School furnishes the necessary clothing, and all students are strongly urged to avail themselves of this privilege.

Requirements for Admission

In general, the preparation necessary to enable an applicant to pursue successfully one of the regular courses, corresponds with that afforded by high schools of the better grade, offering a four year course of study.

Every applicant must furnish references as to his character and ability, and must show cause why he may reasonably be expected to make a success of his course, both in the practical work and at the school. He must be willing and able to work hard, both mentally and physically.

For those unable to carry on the Engineering work owing to inadequate preliminary training, it has been found possible to plan special courses, of one or two years' duration in the Preparatory School to fit for the Engineering Courses.

There are no examination requirements for entrance this year, but on, and after July, 1912, all candidates for admission will be required to pass examinations in Elementary Algebra, Plane Geometry, Elementary Physics, English Composition and Mechanical Drawing.

The examinations for entrance will be held at the Association Building on June 13 and 14, 1912, and on September 12 and 13, 1912.

The detailed requirements in the various subjects are as follows:

Algebra. The four fundamental operations for rational algebraic expressions; factoring, determination of highest common factor and lowest common multiple by factoring; fractions, including complex fractions; ratio and proportion; linear equations, both numerical and literal, containing one, or more, unknown quantities; problems depending on linear equations; radicals, including the extraction of the square root of polynomials and numbers; exponents, including the fractional and negative.

Plane Geometry. The usual theorems and constructions of good text-books, including the general properties of plane rectilinear figures; the circle and the measurement of angles; similar polygons; areas; regular polygons and the measurement of the circle. The solution of numerous original exercises, including loci problems. Applications to the mensuration of lines and plane surfaces.

English. The examination in English will be as far as possible a test of the candidate's ability to express himself in writing in a manner at once clear and accurate.

The candidate will be required to write upon subjects familiar to him. His composition should be correct in spelling, punctuation, grammar, idiom and formation of paragraphs, and should be plain and natural in style. He will be judged by how well, rather than by how much, he writes.

Physics. The candidate will be expected to be familiar with the fundamental principles of Physics. It is especially desirable that he should have a good knowledge of general mechanics and of the mechanics of solids, liquids and gases. A knowledge of physical hypotheses is comparatively unimportant. Textbook instruction should be supplemented by lecture-room experiments. A sufficiently extended treatment of the subject will be found in any of the principal textbooks now in use in secondary schools. Ability to solve simple problems will be expected.

Mechanical Drawing. The applicant must be familiar with the projections of points, lines, planes and simple solids. Special attention is called to the importance of neatness and accuracy, and to facility in lettering and dimensioning drawings. Plates should be presented, showing the ground covered by the applicant.

Registration

Before becoming a member of the school the student is required to fill out, and hand in at the office, an attendance card, blank forms of which will be supplied. A ten dollar registration fee, which is non-returnable, is to be paid at the same time. This fee is credited to the student as part payment toward his tuition.

The practical work begins July 10, 1911, and candidates desiring to start at that time should register as soon as possible, that due provision may be made for them.

Those who do not wish to start until September should register at once stating their preference, that they may be taken care of at the proper time. The practical work starts September 25th.

Attendance

Students are expected to attend all the exercises of their several courses. In case of necessary absence the Dean will grant an excuse. Unnecessary absence from recitations will be dealt with severely.

Status of Students

The ability of students to continue their courses is determined in part by means of examinations; but regularity of attendance and faithfulness to daily duties are considered equally essential.

Number of Students

Since the number of positions at our disposal is limited, and as several students have already registered to start in this coming year, those desiring to enter the school are advised to apply for admission at the earliest possible date. The early applicants have a choice of the positions open.

Examinations

General examinations in all subjects will be held at the close of each school year and will cover the work of the entire year. They will be divided into two sections, one confined to the work of the first half year, the other to the work of the second half year. All students who have maintained a yearly average of 80 per cent or over in any study may be excused from the examination in that study at the discretion of the instructor in charge, and with the approval of the Dean. All other students will take the examinations and their standing for the year will be based half on the rank obtained in the year's work and half on the rating obtained on the examination.

Intermediate examinations the results of which are not a matter of permanent record, but are primarily for the information of students and their parents or guardians, may be held at any time.

Reports of Standing

Intermediate reports are sent out during the school year and at the close of the year final reports with the standings obtained in the year's work, are sent to the parents of the student.

Fees

The tuition fee is \$100 per year and must be paid as follows:

Ten dollars at the time of registration.

Ten dollars additional before receiving any supplies.

Thirty dollars December 1.

Thirty dollars February 1.

Twenty dollars April 1.

This fee includes full membership in the Association with gymnasium privileges, as well as the use of all books, drawing supplies, etc., etc., which are required in the school work. Such supplies as are required by the student for his school work are loaned to him by the school and must be returned on demand in good condition, or else paid for.

Diplomas

At the completion of the course diplomas will be awarded to graduates. These diplomas will be signed by both the school authorities and the employers.

School Year and Vacations

The school opens on the last Monday in September. There are no recesses save that at Christmas, except on legal holidays, and the school year closes on the first Saturday in June.

The school year comprises thirty-six weeks of work and thus each student is in attendance for eighteen weeks. All the rest of the year except one week at Christmas and two weeks during the summer he is at work for the firm by whom he is engaged.

Following are quotations from letters that have been received from the men in whose charge the boys are during their times of practical work. These give a good idea of their views in regard to the utility of our plan.

PAUL WINSOR, CHIEF ENGINEER
Boston Elevated Railway Company

"I have been interested in following the work of these young men and am pleased to say that the work and behavior of these two have been extremely satisfactory.

"I believe that this Polytechnic course was much needed for young men who are ambitious and willing, but unable to take a full Technology course, and that the results will be satisfactory both to the men and to the companies employing them.

"Judging from the results so far obtained, I believe we could well take ten sets of these men."

JOHN B. RUSSELL, Engineer of Construction
Boston and Albany Railroad

"It gives me pleasure to inform you that my experience during the past six months with the student apprentices from your school has been very satisfactory and this movement meets my hearty approval.

"There are, of course, in the engineering works, certain positions and lines of work in which it is impracticable to employ the students, due to the alternation from week to week, since these positions required the continued attention of one man, but, as a whole, I see no reason why this system cannot be worked out to the mutual advantage of both the student and the employer."

MR. HENRY BARTLETT, General Superintendent Mechanical Department
Boston and Maine Railroad

"The course of instruction which you give them seems to make them well fitted for taking up mechanical work, and I believe it would be a good plan to take on two more boys at an early date."

MR. J. L. RANDALL, Inspector of Motive Power Shops
Boston and Maine Railroad

"As I have two apprentices working under me at present, who are going to your school, I have written to our superintendent asking him if it were not possible to have two more boys follow right in line behind them as this is certainly working out very nicely. I am quite anxious to get two more boys if possible to follow in behind these two."

COURSES OF STUDY

MECHANICAL ENGINEERING

FIRST YEAR

Mathematics
Business English
Chemistry
Physics
Mechanical Drawing
Descriptive Geometry
Elementary Applied Mechanics
Lettering

THIRD YEAR

Applied Mechanics
Mathematics
Machine Drawing
Thermodynamics
Electrical Engineering
Electrical Engineering Laboratory
Mechanical Engineering Drawing
Surveying

SECOND YEAR

Descriptive Geometry
Mathematics
Business English
Mechanical Engineering Drawing
Mechanism and Machine Design
Applied Mechanics
Physics
Valve Gears
Surveying
Chemistry

FOURTH YEAR

Metallurgy of Iron
Applied Mechanics
Dynamics of Machines
Electrical Engineering
Electrical Engineering Laboratory
Machine Design
Foundations
Hydraulic Motors
Elective
Locomotive Engineering
Power Plant Design

CHEMICAL ENGINEERING

FIRST YEAR

Mathematics
Business English
Chemistry
Chemical Laboratory
Physics
Mechanical Drawing
Descriptive Geometry
Elementary Applied Mechanics
Lettering
German

THIRD YEAR

Quantitative Analysis
Thermodynamics
Mechanical Engineering Drawing
Machine Drawing
Applied Mechanics
Organic Chemistry
Heat Engineering
Technical Analysis
Surveying

SECOND YEAR

Qualitative Analysis
Mechanism
Mathematics
Business English
Physics
Descriptive Geometry
German
Valve Gears
Mechanical Engineering Drawing
Applied Mechanics

FOURTH YEAR

Organic Chemistry
Organic Chemical Laboratory
Industrial Chemistry
Dynamo Electric Machinery
Theoretical Chemistry
Applied Mechanics
Electrical Engineering Laboratory

CIVIL ENGINEERING

FIRST YEAR

Mathematics
Business English
Chemistry
Physics
Mechanical Drawing
Descriptive Geometry
Elementary Applied Mechanics
Lettering
Surveying

SECOND YEAR

Mathematics
Business English
Surveying and Plotting
Physics
Chemistry
Mechanism
Descriptive Geometry
Topographical Drawing
Applied Mechanics
Stereotomy

THIRD YEAR

Railroad Engineering
Advanced Surveying
Dynamical Geology
Dynamo Electric Machinery
Theory of Structures
Materials
Testing Materials

FOURTH YEAR

Metallurgy of Iron
Theory of Structures
Bridge Design
Foundations
Heat Engineering
Advanced Structures
Elective
Railroad Engineering
Railroad Design

ELECTRICAL ENGINEERING

FIRST YEAR

Mathematics
Business English
Chemistry
Physics
Mechanical Drawing
Descriptive Geometry
Elementary Applied Mechanics
Lettering

SECOND YEAR

Mathematics
Business English
Mechanism and Machine Design
Valve Gears
Mechanical Engineering Drawing
Descriptive Geometry
Surveying
Applied Mechanics

THIRD YEAR

Electrical Engineering
Electrical Laboratory
Thermodynamics
Applied Mechanics
Alternating Currents
Technical Electrical Measurements
Machine Drawing

FOURTH YEAR

Alternating Current Machinery
Electrical Engineering Laboratory
Electrical Light and Transmission of
Power
Technical Electrical Measurements
Hydraulic Engineering
Stationary Structures

ASSOCIATION INSTITUTE

BOSTON YOUNG MEN'S CHRISTIAN ASSOCIATION

Organized on the University Plan

Day, Evening and Summer Schools from the 7th Grade Grammar up to and including work qualifying for a College Degree.

College Preparatory School

A high-grade College Preparatory School consisting of a Grammar School (7th and 8th grades) and a High School fitting for the Colleges, Medical and Dental schools, Massachusetts Institute of Technology, Anna-
polis, West Point, Lowell School for Industrial Fore-
men, Law schools and the classified Civil Service.

Day and Evening Sessions

IRA A. FLINNER, Ph. B., A.M., Dean

School of Business

Day and Evening Sessions

Offers all of the courses of the regular Business School program, and additional cultural courses preparing for business and admission to our School of Commerce and Finance.

ARTHUR H. DELANO, A.B., Boston University, Dean

Co-operative Engineering School

Day Sessions

Four years' courses of college grade in Chemistry, Mechanical and Civil Engineering, etc., in co-operation with business firms. Students earn while learning.

H. W. GEROMANOS, S.B., Massachusetts Institute of Technology, Dean

Co-operative Business School

Day Sessions

Three years' courses of high school grade in com-
mercial training combined with business experience. Earnings
while learning.

ARTHUR H. DELANO, A.B., Boston University, Dean

School of Commerce and Finance

Evening Sessions

Established 1907; incorporated 1911. Offers a two years' course in preparation for the Certified Public Accountants' examinations. Provides a three years' course in the science of Business administration. Grants degrees of Bachelor of Commercial Science and Master of Commercial Science.

FRANK PALMER SPEARE, Dean

Evening Law School

Evening Sessions Only

Established in 1898; incorporated in 1904. Provides a four years' course in preparation for the Bar and grants the Degree of Bachelor of Laws.

FRANK PALMER SPEARE, Dean

Polytechnic School

Day and Evening Sessions

A School of many departments, training students in Engineering and Applied Science. Much of this work is of technical school grade.

H. W. GEROMANOS, S.B., Massachusetts Institute of Technology, Dean

School of Electricity

Day and Evening Sessions

Offers one and three years' courses in Applied Electricity and Engineering. Well-equipped shops and laboratories.

WILLIAM LINCOLN SMITH, S.B., Massachusetts Institute of Technology, Dean

Automobile School

Day and Evening Sessions

Deals with the construction, care and operation of all types of gasoline vehicles; a large staff of teachers; ample equipment and garage.

WINTHROP C. HOSFORD, Dean

For further information concerning any of the above schools or departments, address the Educational Director,

FRANK PALMER SPEARE, 10 Ashburton Place, Boston Mass.

